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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF UTAH, CENTRAL DIVISION

SHEN ENGINEERS, INC., a Utah Corporation, Plaintiff, vs. RICHARD BRIGHTON, an individual, d/b/a BRIGHTON ARCHITECTURAL GROUP, Defendant.	**SECOND AMENDED COMPLAINT** **JURY DEMAND** Case No. 2:22-cv-00624-CMR Judge Cecilia M. Romero

Plaintiff Shen Engineers, Inc. ("Shen") hereby alleges against Defendant Richard Brighton, d/b/a Brighton Architectural Group ("Brighton") as follows:

PARTIES

1. Plaintiff Shen is a Utah corporation having a principal place of business in Salt Lake County, Utah.

2. On information and belief, Defendant Richard Brighton is an individual residing in Summit County, Utah.

JURISDICTION AND VENUE

3. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1338(a). Personal jurisdiction is present, as Defendant resides in this district and the actions alleged herein occurred in this district. Supplemental jurisdiction is provided over the state law claims pursuant to 28 U.S.C. § 1367.

4. Venue is proper under 28 U.S.C. §§ 1391 and 1400(a), as Defendant resides or is found in this district and the actions complained of occurred in this district.

GENERAL ALLEGATIONS

5. Shen is a professional engineering firm which provides, among other things, architectural engineering services to house designers and architects.

6. Shen has been providing engineering services to the public in Utah for more than 25 years.

7. Architects and home designers create the floor plans and elevations for a building they desire to be built. Structural engineers like Shen then perform the engineering calculations to ensure that the building has proper structural support and will otherwise be structurally sound. The structural engineers then produce engineering plans with instructions and drawings on how to build the structure to ensure that the building will be structurally sound.

8. If a building which has been engineered by an engineering firm were to collapse, the engineering firm is likely to be sued and may face considerable liability.

9. Brighton provides architectural services under the name Brighton Architectural Group.

10. In 2017 Brighton contracted with Shen to provide engineering plans for five architectural plans that Brighton designed. A copy of engineering plans titled Highstar Cabin 2500 is attached hereto as Exhibit A.

11. A copy of engineering plans titled Highstar Cabin 2800 is attached hereto as Exhibit B.

12. A copy of engineering plans titled Highstar Cabin 2050 is attached hereto as Exhibit C.

13. A copy of the engineering plans titled Highstar Cabin 3300 is attached hereto as Exhibit D.

14. A copy of the engineering plans titled New Cabin is attached hereto as Exhibit E.

15. At no time has Shen ever been an employee of Brighton.

16. Brighton has never paid taxes on behalf of Shen,

17. Brighton has not controlled the location, work hours or means of Shen preparing its engineering plans.

18. Brighton and Shen did not have a written instrument signed by them that any of Shen's work shall be considered a work made for hire.

19. Houses based on Brighton's architectural plans were intended to be built in Kamas, Utah.

20. Shen's standard agreement allows his clients to use Shen's engineering plans for a single building. Each subsequent use requires the payment of a reuse fee and Shen confirms that

the engineering plans are appropriate for the second or subsequent building as any modifications may require modification to the engineering plans.

21. Brighton paid for engineering plans for each of the five architectural plans Brighton created and later paid Shen for one reuse for each of two different engineering plans.

22. Unbeknownst to Shen, Brighton assisted his client in obtaining permits to build approximately twenty additional homes using Shen's engineering plans.

23. As part of that effort, Brighton made photocopies of Shen's engineering plans so that they could be used to acquire building permits for Brighton's client to build the additional houses.

24. Brighton's architectural plans for the subsequent houses were not provided to Shen and Shen was not able to confirm that the engineering plans that Shen created for the original plans were appropriate for the subsequent Brighton architectural plans.

25. On information and belief, Brighton made more than twenty photocopies of Shen's engineering plans and used them without Shen's permission so that Brighton's client could obtain building permits.

26. Brighton charged Highstar five thousand dollars ($5000.00) for a reuse fee for each of his plans, but failed to pay Shen a reuse fee each time Brighton copied Shen's engineering plans and provided them to Highstar.

27. On information and belief, Brighton left Shen's name on each set of engineering plans Brighton made – thereby giving the false impression that Shen was endorsing the structural worthiness of each of the houses.

28. On information and belief, if Shen's name and associated information had not been on the copied engineering plans, they would not have been usable to obtain building permits.

29. Brighton's conduct has created likelihood of confusion as to Shen's endorsement of the photocopied engineering plans and may result in Shen being sued for engineering plans which were used without Shen's permission.

30. On information and belief, Brighton charged his client for reuse of Brighton's architectural plans and Shen's engineering plans for each of the subsequent houses built.

COUNT I

(Copyright Infringement, 17 U.S.C. § 501)

31. Plaintiff realleges the allegations set forth above as if fully set forth herein.

32. Shen is the owner of U.S. Copyright Registration No. VA 2-316-352 (the '352 registration) for technical drawings titled Highstar Cabin 2500. A copy of the registration certificate is attached hereto as Exhibit F.

33. Shen is the owner of U.S. Copyright Registration No. VA 2-319-648 (the '648 registration) for technical drawings titled Highstar Cabin 2800. A copy of the registration certificate is attached hereto as Exhibit G.

34. Shen is the owner of U.S. Copyright Registration No. VA 2-319-674 (the '674 registration) for technical drawings titled Highstar Cabin 2050. A copy of the registration certificate is attached hereto as Exhibit H.

35. Shen is the owner of U.S. Copyright Registration No. VA 2-330-718 (the '718 registration) for technical drawings titled Highstar Cabin 3300. A copy of the registration certificate is attached hereto as Exhibit I.

36. Shen is the owner of U.S. Copyright Registration No. VA 2-300717 (the '717 registration) for technical drawings titled New Cabin 2050. A copy of the registration certificate is attached hereto as Exhibit J.

37. Shen is the owner of U.S. Copyright Registration No. TX 9-169-886 (the '886 registration) for the text contained in the engineering plans for Highstar Cabin 2500. A copy of the registration certificate is attached hereto as Exhibit K.

38. The Highstar Cabin 2500 technical drawings are the engineering plans prepared for Brighton's architectural plans for the "Summit" design.

39. The Highstar Cabin 2800 technical drawings are the engineering plans prepared for Brighton's architectural plans for the "Uinta" design.

40. The Highstar Cabin 2050 technical drawings are the engineering plans prepared for Brighton's architectural plans for the "Gateway" design.

41. The Highstar Cabin 3300 technical drawings are the engineering plans prepared for Brighton's "Wasatch" design.

42. The Highstar 2500 text is the explanations used in the plans prepared for Brighton's architectural plans for the Summit design and derivatives thereof are used in the other engineering plans created for Brighton by Shen.

43. Brighton had access to the Highstar Cabin 2500 technical drawings and the text as Shen charged Brighton $2500 for a set of the engineering plans and provided the plans to Brighton.

44. Brighton paid Shen $1250 for one reuse of the Highstar 2500 engineering plans.

45. Brighton had access to the Highstar Cabin 2800 technical drawings as Shen charged Brighton for a set of the engineering plans and provided the plans to Brighton.

46. Brighton had access to the Highstar Cabin 2050, Highstar Cabin 3300 and New Cabin technical drawings as Shen charged Brighton for a set of the engineering plans and provided the plans to Brighton.

47. On information and belief, Brighton made approximately fifteen photocopies of the Highstar Cabin 2500 engineering plans without Shen's permission and used them to obtain building permits for houses based on Brighton's architectural plans.

48. On information and belief, Brighton made at least three photocopies of the Highstar Cabin 2800 engineering plans without Shen's permission and used them to obtain building permits for houses based on Brighton's architectural plans.

49. On information and belief, Brighton made at least four photocopies of the Highstar Cabin 2050 engineering plans without Shen's permission and used them to obtain building permits for houses based on Brighton's architectural plans.

50. On information and belief, Brighton made at least two photocopies of the Highstar 3300 engineering plans without Shen's permission and used them to obtain building permits for houses based on Brighton's architectural plans.

51. On information and belief, Brighton made photocopies not accounted for above which used the text from the Highstar Cabin 2500 engineering plans, or derivatives thereof, without Shen's permission and used them to obtain building permits for houses based on Brighton's architectural plans.

52. The photocopies made by Brighton were substantially similar to the originals created by Shen.

53. Wherefore, Shen makes a claim against Brighton for copyright infringement.

COUNT II

(False Endorsement, 15 U.S.C. § 1125(a))

54. Shen realleges the preceding paragraphs and further alleges:

55. Shen has been operating as Shen Engineers, Inc. in Utah for more than 23 years and has common law rights in the name Shen Engineers, Inc.

56. Shen marks its work product with its name so that the public associates Shen with its work.

57. Brighton made more than twenty copies of engineering plans created by Shen and pared them with architectural plans drawn by Brighton to obtain building permits.

58. Brighton used the Shen engineering plans to falsely suggest that Shen had approved the plans with which the Shen engineering plans were submitted.

59. The copies made by Brighton contain Shen's name, creating a likelihood of confusion that Shen has endorsed the use of the engineering plans with Brighton's architectural plans.

60. Shen was not given the opportunity to review the Brighton designs with which the Shen engineering plans were used and thus cannot verify that the Brighton plans are structurally sound.

61. Brighton's conduct has exposed Shen to the risk of being sued if one of the houses built according to Brighton's architectural plans were to collapse or be seriously damaged.

62. Wherefore, Shen makes a claim for false endorsement pursuant to the Lanham Act.

COUNT III

(Breach of Contract)

63. Shen realleges the preceding paragraphs and further alleges:

64. Shen provided engineering plans for architectural plans drawn by Brighton.

65. Pursuant to their agreement, Brighton was allowed a single use of each plan, with any additional uses requiring a reuse fee.

66. Brighton paid for the original engineering drawings and paid Shen reuse fees for one subsequent use of the engineering plans.

67. Brighton is familiar with reuse fees and charged Highstar a reuse fee of $5,000.00 per reuse for his drawings, but failed to compensate Shen for the reuse of Shen's engineering plans.

68. Thereafter, Brighton made approximately twenty copies of Shen's engineering plans without informing Shen or paying the reuse fees.

69. Shen has requested Brighton to pay for the unauthorized uses, but Brighton has refused.

70. Wherefore, Shen makes a claim against Brighton for breach of contract.

COUNT IV

(Unjust Enrichment)

71. Shen realleges the preceding paragraphs and further alleges:

72. Brighton received a benefit by making copies of Shen's work without Shen's authorization.

73. Brighton was aware that Shen charges a reuse fee to use Shen's work for additional structures.

74. On information and belief, Brighton charged his client reuse fees for uses of Shen's work.

75. It would be unjust to allow Brighton to retain the benefit of using Shen's work without Shen's authorization and without compensation to Shen.

76. Wherefore, Shen makes a claim against Brighton for unjust enrichment.

WHEREFORE, Plaintiff prays this Honorable Court:

A. For an award of damages for each infringement of Shen's copyrights pursuant to 17 U.S.C. § 504 in an amount of: (1) Shen's actual damages, and (2) for Defendant's profits.

B. For an impoundment order requiring that all infringing works be destroyed.

C. For an injunction barring Defendant from ever again making copies of Shen's engineering plans without authorization.

D. For an award of damages caused by Brighton's use of Shen's name to create a false endorsement.

E. For injunctive relief against Brighton from using Shen's name or work without authorization.

F. For damages for Brighton's breach of contract.

G. For an award to Shen for Brighton's unjust enrichment.

H. For such other relief as the Court considers just.

I. Plaintiff demands a trial by jury on all matters so triable.

DATED: _____.

BATEMAN IP

/s/ Randall B. Bateman
Randall B. Bateman

299 South Main Street, Suite 1300
Salt Lake City, UT 84111

Attorney for Plaintiff Shen Engineers, Inc.

CERTIFICATE OF SERVICE

I hereby certify that I served a copy of the foregoing First Amended Complaint on counsel for Defendant via First Class Mail and email as follows on _____:

Robert Aycock
William Chadwick
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Robert@kimballanderson.com

Will@kimballanderson.com

/s/ Randall B. Bateman

EXHIBIT A

Xrefs: TITLE.DWG

GENERAL STRUCTURAL NOTES:

I. GENERAL:

A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS SHALL BE TYPICAL AND APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE.
B. CONTRACTOR SHALL COMPARE ALL DIMENSIONS AND CONDITIONS ON CONTRACT DOCUMENTS AND AT THE SITE. ANY OMISSION OR CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IN CASE OF ANY CONFLICT FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY ARCHITECT/ENGINEER.
C. SEE THE ARCHITECTURAL DRAWINGS FOR DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, RECESSES, DEPRESSIONS, ETC.
D. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL PORTIONS OF THE BUILDING UNTIL THE ENTIRE STRUCTURE OF THE BUILDING IS COMPLETE.
E. OBSERVATION VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVES SHALL NOT BE CONSTRUED AS INSPECTION OR APPROVAL OF CONSTRUCTION.
F. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN UTAH.

II. DESIGN CRITERIA:

A. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) W/ AMENDMENTS
B. LOADINGS:
1. ROOF SNOW LOAD = 90 PSF + SNOW DRIFT PER IBC
2. TYPICAL FLOOR LIVE LOAD = 40 PSF
3. WIND LOAD - 115 MPH ZONE - EXPOSURE C
4. SEISMIC DESIGN DATA: SDC-D2, Ss=0.98,S1=0.300,I=1,R=6.5, Fa=1.2, WOOD SHEAR WALL SYSTEM, V=0.102, IRREGULARITY=1.0, SITE CLASS: D, EQUIVALENT LATERAL FORCE PROCEDURE

C. FOUNDATION:
1. ALL EXTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 36" BELOW LOWEST ADJACENT FINISH FLOOR OR FINISH GRADE ONTO UNDISTURBED EXISTING SUBSOILS HAVING A MINIMUM NET BEARING CAPACITY OF 1500 PSF. ALL INTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 1'-3" BELOW LOWEST ADJACENT FINISH FLOOR ONTO SUBSOILS.

III. CONCRETE:

A. ALL MATERIALS SHALL COMPLY WITH ACI 318 AND ACI 347 PUBLICATIONS AND APPLICABLE ASTM PUBLICATIONS.
B. CONCRETE MATERIAL PROPERTIES: 28-DAY COMPRESSIVE STRENGTHS ARE TO BE 3000 PSI TYPICAL UNLESS NOTED OTHERWISE. DESIGN BASED ON 2500 PSI.
C. CAST IN PLACE CONCRETE:
1. SPACING OF CONSTRUCTION JOINTS OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 40 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
2. PROVIDE EXTRA REINFORCING AROUND ALL OPENINGS EXCEEDING 24 INCHES SQUARE OR ROUND IN ALL SLABS AND WALLS EQUAL TO TWO #5 BARS ON FOUR SIDES AND EXTEND TWO FEET BEYOND THE OPENING.
3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
4. PROVIDE CLASS B LAP SPLICES FOR ALL REINFORCING UNLESS NOTED OTHERWISE.
5. PROVIDE ISOLATION JOINTS AROUND ALL COLUMNS AT ALL EXPOSED SLAB ON GRADE AREAS.

IV. REINFORCING STEEL:

A. ALL BARS #4 AND LARGER TO BE ASTM A 615, GRADE 60. ALL #2 AND #3 BARS TO BE ASTM A 615, GRADE 40. DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI-318, LATEST ADOPTION.
B. ALL REINFORCING STEEL SHALL BE BENT, DETAILED AND CHAIRED AS PER "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES".
C. WELDED WIRE FABRIC TO BE IN ACCORDANCE WITH ASTM A 185.
D. ALL BARS INDICATED ON THE PLANS TO BE WELDED SHALL CONFORM TO ASTM A706 (GRADE 60).
E. CONCRETE COVER REQUIREMENTS FOR DEFORMED BAR REINFORCING STEEL SHALL COMPLY WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE".
1. CAST-IN-PLACE CONCRETE:
a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
b) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER: 2"
#5 BARS AND SMALLER: 1-1/2"
c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS JOISTS: #11 BARS OR SMALLER: 3/4"
BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1-1/2"
F. DETAILING: SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE ONLY AFTER REVIEW AND APPROVAL. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
1. LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
30 BAR DIAMETER FOR #3 AND #4 BARS
40 BAR DIAMETER FOR #5 THROUGH #8 BARS
DO NOT SPLICE STIRRUPS AND TIES
DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN.
2. ALL EMBEDMENTS AND DOWELS SHALL BE SECURELY TIED TO FORMWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

V. STRUCTURAL AND MISCELLANEOUS STEEL:

A. MATERIAL PROPERTIES:
1. ALL SHAPES, PLATES, ANGLES, AND CHANNELS TO BE ASTM A-36 UNLESS NOTED OTHERWISE.
2. ALL WF SHAPES WEIGHING 84 POUNDS PER LINEAR FOOT OR LESS TO BE ASTM A 572, GRADE 50. ALL WF SHAPES WEIGHING MORE THAN 84 POUNDS PER LINEAR FOOT TO BE ASTM A 572, GRADE 36.
3. SQUARE OR RECTANGULAR TUBES TO BE ASTM A 500, GRADE B, Fy = 46 KSI.
4. ALL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS, LATEST ADOPTION.
B. WELDING:
1. FOR STRUCTURAL STEEL TO BE IN ACCORDANCE WITH A.W.S. REQUIREMENTS FOR E70XX ELECTRODES.
C. BOLTS:
1. ALL BOLTS TO BE 3/4" DIAMETER ASTM A 325-N UNLESS NOTED OTHERWISE.
2. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.
3. ANCHOR BOLTS SHALL BE ASTM A 307 OR A 36.

VI. WOOD:

A. DIMENSIONAL LUMBER: ALL TO BE GRADE STAMPED PER W.C.L.B. RULES.
1. ALL JOISTS, BEAMS, PLATES, HEADERS AND OTHER LUMBER TO BE D.FIR/LARCH #2 UNLESS OTHERWISE NOTED.
2. 2 X 4 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
3. 2X 6 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
4. PURLINS TO BE D.FIR DENSE #1.
5. 4X AND 6X POSTS TO BE D.FIR/LARCH NO.1.
6. WALL STUDS TO BE D.FIR/LARCH #2 GRADE OR BETTER.
B. WOOD DECKING: FLOOR DECKING SHALL BE COMMERCIAL 2 X 6 (NOMINAL TONGUE AND GROOVE DECKING, HEM-FIR OR BETTER WITH A REPETITIVE Fb OF 1450 PSI MINIMUM.
C. GLU-LAMS:
1. TO BE GRADE STAMPED PER A.I.T.C., D.FIR/LARCH COMBINATION 24F-V8 FOR CONTINUOUS SPANS AND D.FIR/LARCH COMBINATION 24F-V4 FOR SIMPLE SPANS. GLUED WITH WATERPROOF GLUE.
D. PLYWOOD:
1. ROOF SHEATHING TO BE STD 5/8" OSB OR C-D WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
2. FLOOR SHEATHING TO BE STD 3/4" OSB OR C-C T&G WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 8d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 8d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
3. EXTERIOR WALLS TO BE STD 7/16" OSB OR 1/2" C-C WITH EXTERIOR GLUE. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING AND NAILING.
E. PLYWOOD WEB I JOISTS:
1. TO BE DESIGNED, DETAILED AND FABRICATED BY TRUS-JOIST AND HAVE THE APPROVAL OF ICBO.
2. JOISTS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
3. DESIGN JOISTS FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
F. SPECIAL TREATMENTS (AMERICAN WOOD PRESERVERS INSTITUTE STANDARDS):
1. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL: PRESSURE TREAT WITH WOLMAN CCA PRESERVATIVE OR EQUAL AS APPROVED BY THE ARCHITECT.
2. FIRE RETARDANT: PRESSURE TREAT WITH DRICON OR EQUAL AS APPROVED THE ARCHITECT.
G. WOOD NAILING SCHEDULE:
1. JOIST TO SILL OR GIRDER, TOENAIL 3-8d
2. BRIDGING TO JOIST, TOENAIL EACH END 2-8d
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST FACE NAIL 2-8d
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST, FACE NAIL 3-8d
5. SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL 2-16d
6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL 2-16d
7. TOP PLATE TO STUD, END NAIL 2-16d
8. STUD TO SOLE PLATE TOENAIL 4-8d OR FACE NAIL 2-16d
9. DOUBLE STUDS, FACE NAIL 16d @ 24" o.c.
10. DOUBLED TOP PLATES, FACE NAIL 16d @ 16" O.C.
11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2-16d
12. CONTINUOUS HEADER, 2 PIECES 16d @ 16"O.C. ALONG 2 EDGES
13. CEILING JOISTS TO PLATE, TOENAIL 3-8d
14. CONTINUOUS HEADER TO STUD, TOENAIL 4-8d
15. CEILING JOIST, LAPS OVER PARTITIONS FACE NAIL 3-16d
16. CEILING JOIST TO PARALLEL RAFTERS FACE NAIL 3-16d
17. RAFTER TO PLATE, TOENAIL 4-8d
18. BRACE TO EACH STUD AND PLATE, FACE NAIL 2-8d
19. 1"X8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL 2-8d
20. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL 3-8d
21. BUILT UP CORNER STUDS 16d @ 24" O.C.
22. BUILT-UP GIRDERS AND BEAMS 20d @ 32"O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT EACH END & SPLICE
23. PLANKS 2-16d AT EACH BEARING

VII. MISCELLANEOUS:

A. GYPSUM WALLBOARD: FOR SHEAR WALLS TO BE STANDARD 1/2" GYPSUM WALLBOARD. NAIL WITH 5D COOLER NAILS AT 7" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
B. STUCCO: FOR SHEAR WALLS TO BE STANDARD 7/8" PORTLAND CEMENT PLASTER ON EXPANDED METAL OR WOVEN WIRE LATH. NAIL WITH NO.11 GAGE, 1 1/2" LONG, 7/16" HEAD NAILS OR NO.16 GAGE STAPLES WITH 7/8" LONG LEGS AT 6" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.

VIII. SPECIAL INSPECTION: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.
A. EPOXY BOLTS IN TENSION IF APPLY.

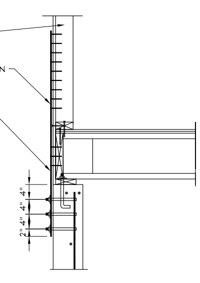
IX. BRICK AND/OR STONE VENEER NOTES:
1. TO WOOD STUD WALLS: VENEER SHALL BE ATTACHED TO THE WOOD STUDS WITH A 1" MINIMUM WIDE X 22 GAUGE, GALVANIZED, CORRUGATED BRICK TIE SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER. CORRUGATED METAL TIES SHALL FORM A 180-DEGREE HOOK AROUND THE NO. 9 GAUGE WIRE USED AS HORIZONTAL JOINT REINFORCEMENT IN THE VENEER. SPOT BEDDING AT THE CORRUGATED TIES SHALL BE OF CEMENT MORTAR ENTIRELY SURROUNDING THE TIES. ATTACH TIES TO STUDS WITH A MINIMUM #10 X 1 1/2" WOOD SCREW.
2. TO CONCRETE WALLS: 22 GAUGE GALVANIZED DOVETAIL SLOTS SHALL BE INSTALLED VERTICALLY IN CONCRETE AT 16" O.C. VENEER SHALL BE ATTACHED TO THE CONCRETE WITH 1" X 22 GAUGE, CORRUGATED, GALVANIZED DOVETAIL BRICK ANCHORS OR 3/16" DIAMETER GALVANIZED DOVETAIL TRIANGLE WIRES SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER.
3. OTHER METHODS OF ATTACHMENT MAY BE USED AFTER WRITTEN ACCEPTANCE BY THE ARCHITECT AND STRUCTURAL ENGINEER.

X. PREFABRICATED WOOD TRUSSES:

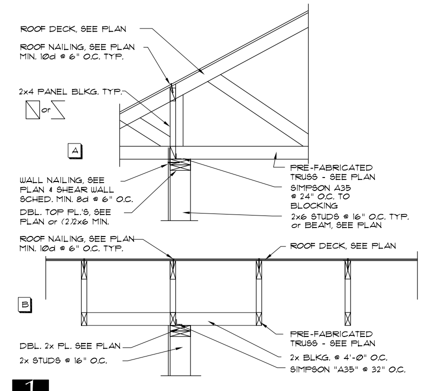
1. TO BE "GANG-NAIL" OR "ALPINE" OR APPROVED EQUAL DESIGNED, DETAILED AND FABRICATED IN ACCORDANCE WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING" AND THE TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION.
2. LOADING:
a) TRUSS TOP CHORDS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
b) TRUSS BOTTOM CHORDS ARE TO BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 5 PSF.
c) DESIGN TRUSSES FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
d) FOR TRUSSES MANUFACTURED SUCH THAT ALL CHORDS ARE MSR LUMBER AND ALL CHORD SPLICES ARE FINGER JOINTS AND PROOF LOADED IN ACCORDANCE WITH U.B.C STANDARDS, THE ALLOWABLE STRESS INCREASE FOR DURATION OF LOAD MAY BE THE MAXIMUM PERMITTED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING", LATEST ADOPTION.
3. SUBMITTALS:
a) COMPLETE DESIGN CALCULATIONS SHALL BE FURNISHED TO THE ENGINEER FOR EACH TRUSS. CALCULATIONS MUST BE PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF UTAH.
b) SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
c) THE TRUSS MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE TRUSS QUALITY IS IN CONFORMANCE TO "QUALITY STANDARD FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION, PUBLISHED BY THE TRUSS PLATE INSTITUTE.
d) THE TRUSS MANUFACTURER SHALL HAVE A QUALITY ASSURANCE PROGRAM IN ACCORDANCE WITH SECTION 25-1739 OF UBC STANDARD NO. 25-17 AND PROVIDE WRITTEN CERTIFICATION OF COMPLIANCE FROM THE INDEPENDENT TESTING AGENCY.
4. GENERAL:
a) ALL TRUSSES AND RELATED BRACING SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS.
b) LUMBER USED FOR CHORDS AND WEBS SHALL HAVE A MAXIMUM MOISTURE CONTENT BELOW 19% AT THE TIME OF FABRICATION.
c) ALL TRUSS MEMBERS SHALL MEET OR EXCEED VISUAL REQUIREMENTS FOR NO. 2 GRADE. NO WANE SHALL BE PERMITTED IN THE CONNECTION AREA.
d) DESIGN LATERAL RESISTANCE VALUES FOR TRUSS PLATES AND METAL WEBS SHALL BE 80% OF ICBO ALLOWABLE LOAD VALUES.
e) THE HANKINSON FORMULA OR STRAIGHT LINE INTERPOLATION SHALL BE USED TO DETERMINE LATERAL RESISTANCE VALUES FOR PLATE TO WOOD GRAIN ANGLES BETWEEN 0 AND 90 DEGREES.
f) AT CHORD SPLICE LOCATIONS, MAXIMUM TENSION FORCES SHALL BE AS FOLLOWS:

PLATE GAGE	2X4	2X6
20	3500 #	5000 #
18	4800 #	7000 #
16	6000 #	9000 #

g) THE AXIAL FORCE FOR A 2X4 WEB SHALL NOT EXCEED 3500 LBS.
h) TRUSS PLATES SHALL BE SIZED SO THAT THEY CAN BE CENTERED BOTH HORIZONTALLY AND VERTICALLY ON THE JOINT UNLESS THE CHORD DEPTH OR THE TRUSS GEOMETRY PROHIBITS SUCH PLACEMENT.
i) EVERY TRUSS PLATE SHALL BE FULLY EMBEDDED INTO THE UNDERLYING WOOD ACROSS THE ENTIRE CONTACT AREA.
j) ALL TRUSSES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "HANDLING AND ERECTING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE. TEMPORARY BRACING SHALL BE INSTALLED DURING ERECTION AS REQUIRED BY THE LATEST EDITION OF "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE.



4 HOLDOWN INSTALLATION WITH EPOXY BOLTS



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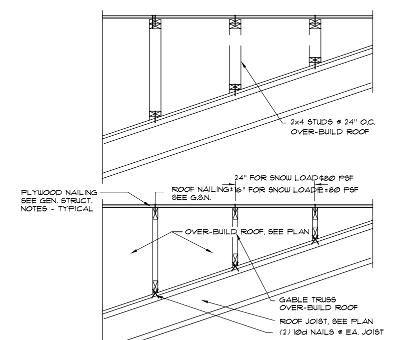


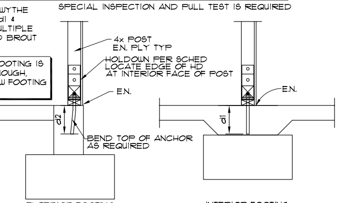
2 SUGGESTED OVER-BUILD ROOF DETAIL

HOLDOWN ALTERNATES w/ SIMPSON "SET-XP" - ESR2508					
HOLDOWNS CALLED OUT ON PLAN	SIMPSON HOLDOWNS	NEW ANCHORS SIMPSON "SET-XP"	d1*	d2*	d2 @ CORNER
HDN5	HDU2	5/8"φ	6"	6"	10"
HDN6	HDU5	5/8"φ	6"	8"	14"
HDN7	HDU8	7/8"φ	8"	13 1/2"	
HDN8	HDU11	1"φ	8"	16"	
HDN9	HDU14	1"φ	12"	19"	

SPECIAL INSPECTION AND PULL TEST IS REQUIRED

FOR (E) DBL. WYTHE BRICK WALL, d1 & d2 SHOULD MULTIPLE BY 1.5 w/SOLID BROUT PROVIDED

IF EXISTING FOOTING IS NOT DEEP ENOUGH, UNDERPIN NEW FOOTING AS NEEDED.



3 HOLDOWN INSTALLATION WITH EPOXY BOLTS

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
9/28/2017

NO.	REVISION	DATE

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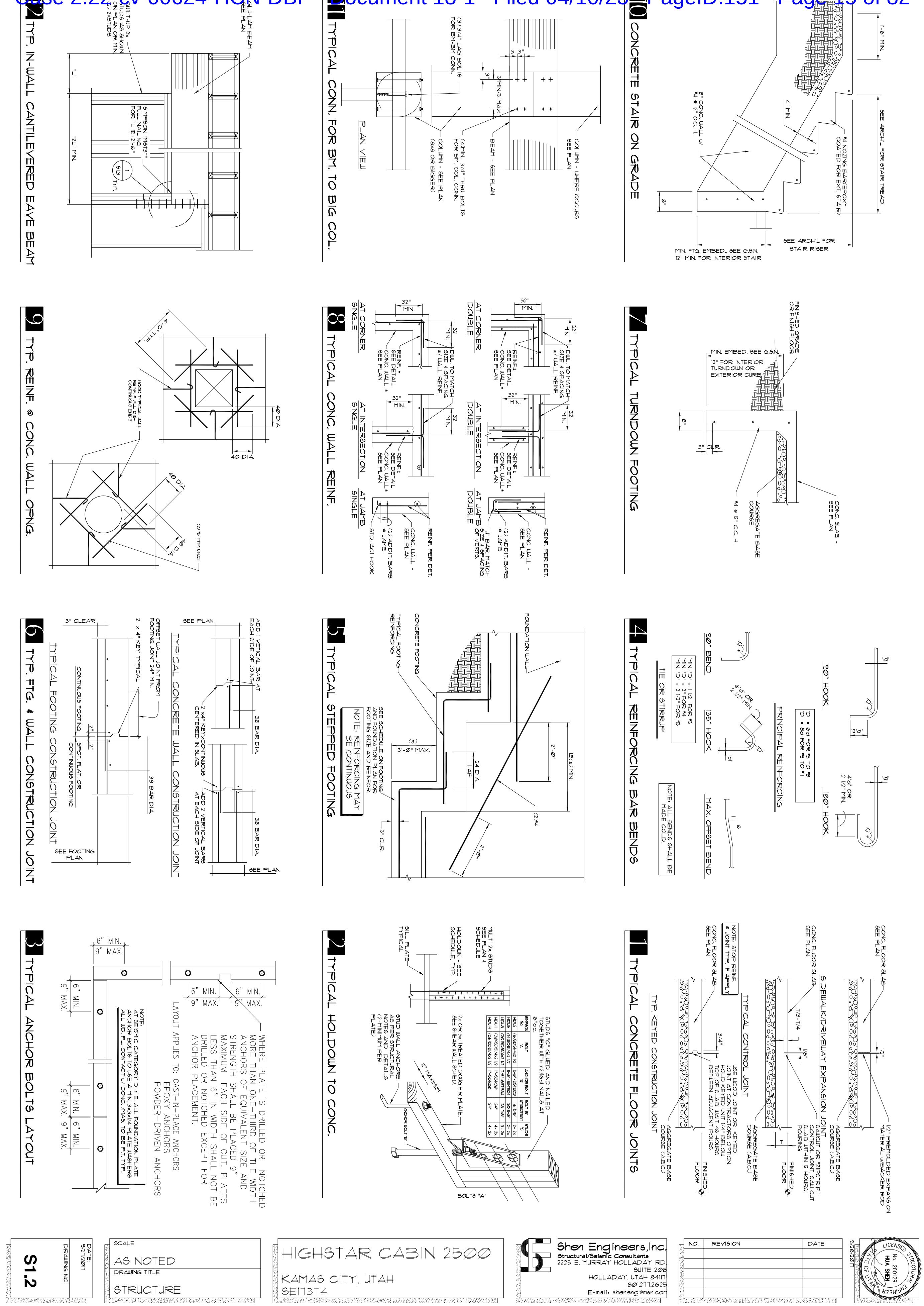

12 TYP. IN-WALL CANTILEVERED EAVE BEAM
11 TYPICAL CONN. FOR BM. TO BIG COL.
10 CONCRETE STAIR ON GRADE
9 TYP. REINF. @ CONC. WALL OPNG.
8 TYPICAL CONC. WALL REINF.
7 TYPICAL TURNDOWN FOOTING
6 TYP. FTG. & WALL CONSTRUCTION JOINT
5 TYPICAL STEPPED FOOTING
4 TYPICAL REINFORCING BAR BENDS
3 TYPICAL ANCHOR BOLTS LAYOUT
2 TYPICAL HOLDOWN TO CONC.
1 TYPICAL CONCRETE FLOOR JOINTS
HIGHSTAR CABIN 2500
KAMAS CITY, UTAH
SE17374
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DATE 9/27/20
DRAWING NO.
S1.2
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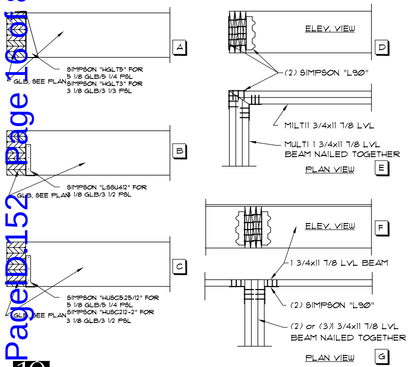

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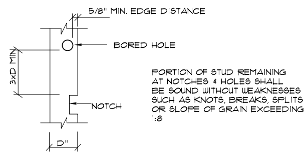

WOOD STUD SIZE	BEARING		NON-BEARING	
	MAX. HOLE (40%)	MAX. HOLE (25%)	MAX. HOLE (60%)	MAX. HOLE (40%)
2x4	1 3/8"	7/8"	2 1/8"	1 3/8"
2x6	2 3/16"	1 3/8"	3 5/16"	2 3/16"

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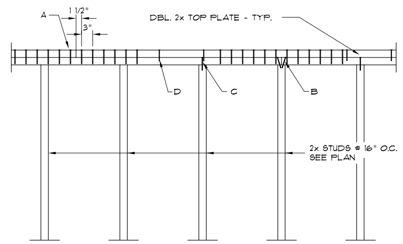
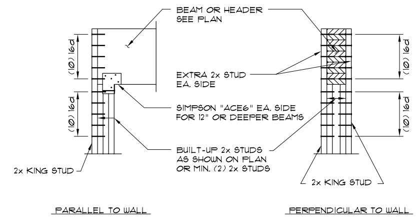


NAILING SCHEDULE	
MARK	DESCRIPTION
A	(24) 16d NAILS AT 3"O.C. .
B	2 - 16d NAILS AT THE END OF EACH PLATE (TOP OR BOTTOM) 4 - TOTAL.
C	2 - 16d NAIL AT EACH STUD.
D	NAIL TOP AND BOTTOM PLATES TOGETHER WITH 2 - 16d NAILS AT 16"O.C. TYPICAL.

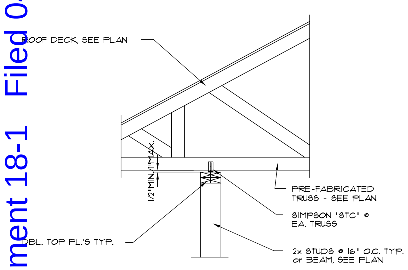
THE TOP PL'S. HAVE TO BE INSTALLED CONTINOUSLY. IF THEY ARE DIS-CONTINUED BY STEEL COLUMNS, PIPES ETC., INSTALL CS16x24"MIN.(12" FROM EA. SIDE) TO TOP PLATE TYP. U.N.O.

4 TYPICAL TOP PLATE SPLICE

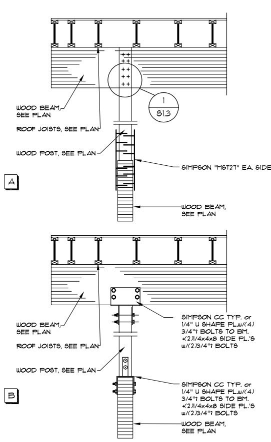


NOTE: FOR BEAMS DEEPER THAN 16", ONE SIMPSON "MST60" SHALL BE USED TO CONNECT BEAM TO THE MULTI-STUDS TYP. U.N.O.

1 TYPICAL WOOD HEADER OR BEAM TO MULTI-STUDS CONNECTION



11 TRUSS TO NON-BRG. WALL CONNECTION



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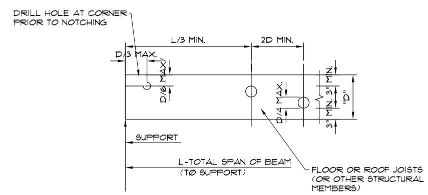
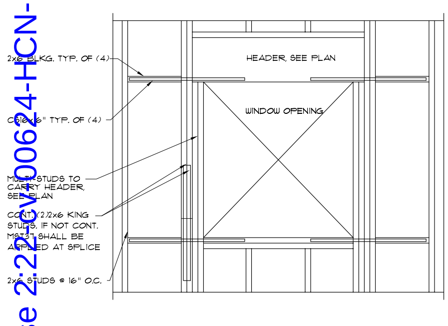
NAIL/STAPLE EQUIVALENT TABLE.				
FLOORS AND ROOF				
NAILS		STAPLES		
SIZE	SPACING	SIZE	SPACING	LENGTH
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	2 1/2"	14 GA	2 1/2"	1 1/2"
8d	2"	14 GA	2"	1 1/2"
10d	6"	14 GA	4"	1 5/8"*
10d	4"	14 GA	2 1/2"	1 5/8"*
10d	2 1/2"	14 GA	2"	1 5/8"*
* IN 3/4" PLYWOOD USE 2" STAPLES				
WALL				
3/8" PLYWOOD				
8d	6"	14 GA	6"	1 3/8"
8d	4"	14 GA	4"	1 3/8"
8d	3"	14 GA	3"	1 3/8"
8d	2"	14 GA	2"	1 3/8"
1/2" PLYWOOD				
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	3"	1 1/2"
8d	3"	14 GA	2 1/2"	1 1/2"
10d	6"	14 GA	4"	1 1/2"
10d	4"	14 GA	3"	1 1/2"
10d	3"	14 GA	2"	1 1/2"

5 NAIL/STAPLE EQUIVALENT TABLE

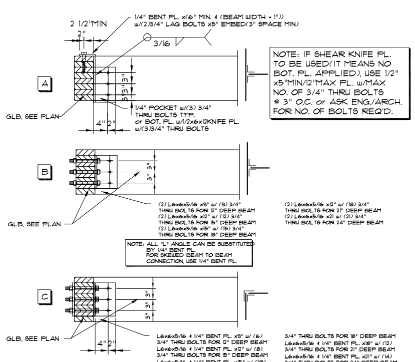


NOTE: NOTCHES AND DRILLED HOLES AS SHOWN ABOVE MAY BE USED ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER

2 TYP. HOLES AND NOTCHING IN BEAMS



12 REINFORCED WINDOW OPNG. AS SHOWN ON PLAN AS



NOTE: IF SHEAR KNIFE PL. TO BE USED(IT MEANS NO BOT. PL. APPLIED), USE 1/2" x5"MIN/12"MAX PL. w/MAX NO. OF 3/4" THRU BOLTS @ 3" O.C. or ASK ENG./ARCH. FOR NO. OF BOLTS REQ'D.

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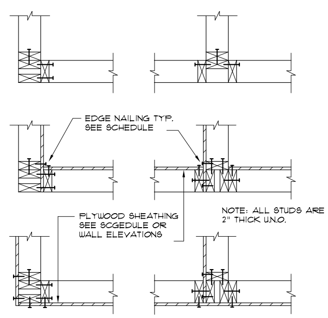
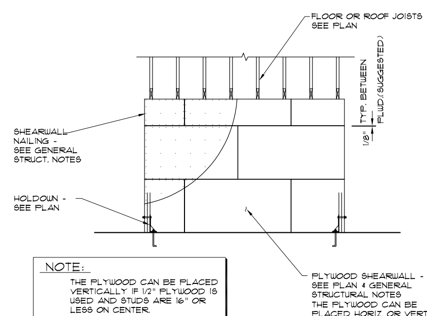
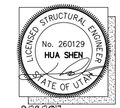


6 TYPICAL WALL INTERSECTION FRAMING



NOTE:
THE PLYWOOD CAN BE PLACED VERTICALLY IF 1/2" PLYWOOD IS USED AND STUDS ARE 16" OR LESS ON CENTER.
1/2"(C-D,C-C) PLWD. CAN BE SUBSTITUTED BY 7/16" OSB

3 TYPICAL SHEAR WALL ELEVATION



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Xrefs: S4212.DWG S4211.DWG S4210.DWG S4209.DWG S4208.DWG S4207.DWG S4206.DWG S4205.DWG S4204.DWG S4203.DWG S4202.DWG S4201.DWG TITLE.DWG

SCHEDULE FOR SIMPSON HANGERS ON 12" MAX. BEAMS AND JOISTS TYP.

	TOP MOUNT HANGERS	FACE MOUNT HANGERS
9 1/2" TJI SERIES	ITS	IUS
DBL. 9 1/2" TJI	MIT	MIU
11 7/8" TJI110	ITS	IUS
DBL 11 7/8" TJI	MIT	MIU
1 3/4x LVLorPSL	WPU	HU
3 1/2x LVLorPSL	GLTV	HU/HGU
5 1/4x LVLorPSL	GLTV/HGLTV	HU/HGU
7x LVLorPSL	HGLTV	HGUS
3 1/8x GLB	GLST	
5 1/8x GLB	GLST	
6 3/4x GLB	GLST	
8 3/4x GLB	HGLST	
2x JOISTS	HU	LUS
(2)2x	HUS-2TF	LUS
(3)2x	HUS-3TF	LUS

ON STRUCTURAL PLANS AND DETAILS, THERE ARE SOME OPTIONS. ARCHITECTS PLEASE SPECIFY THE OPTIONS. IF G.C. OR OWNER HAS ANY CONCERNS ON THE OPTIONS, CONTACT ARCHITECTS TO CLARIFY THEM TYP. U.N.O.

ALL FLOOR JOISTS TO BE 11 7/8" TJI210 @ 16" O.C. TYPICAL, U.N.O.

CONTRACTOR PLEASE SEE ARCH. DWG. FOR PLUMBING LOCATION OF BATHTUB, TOILET. PLEASE OFFSET JOISTS WHERE OCCURS. USE DOUBLE JOISTS UNDER BATHTUB, KITCHEN ISLAND, AND OTHER HEAVY STUFFS.

NOTE: FOR ALL (2)1 3/4x11 7/8LVL BM PROVIDE MIN. (2)2x6 AS END BEARINGS TYP. U.N.O.

UB1/MB1/LB1/FB1: (2)1 3/4x11 7/8 LVL
UB2/MB2/LB2/FB2: (3) 1 3/4x11 7/8 LVL or 5 1/8x12 GLB

THE GLB BEAMS CAN BE SUBSTITUTED BY PSL (orLVL)BEAMS AS FOLLOWS:
(IT DOESN'T WORK FROM PSL(orLVL) TO GLB TYP.)

3 1/8x9GLB	3 1/2x9 1/2PSL/(2)1 3/4x9 1/2LVL
3 1/8x12GLB	3 1/2x11 7/8PSL/(2)1 3/4x11 7/8LVL
5 1/8x12GLB	5 1/4x11 7/8PSL/(3)1 3/4x11 7/8LVL
5 1/8x15GLB	5 1/4x16PSL/(3)1 3/4x16LVL
5 1/8x18GLB	5 1/4x18PSL/(3)1 3/4x18LVL
6 3/4x12GLB	7x11 7/8PSL/(4)1 3/4x11 7/8LVL

FLOOR FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND STANDARD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL SHEAR WALL DETAIL
   D. TYPICAL TOP PLATE SPLICE DETAIL
2. HDR-1 = HEADER, SEE HEADER SCHEDULE TYPICAL.
3. ALL FLOOR MEMBERS ARE TO BE 11 7/8" TJI 210 TYPICAL. U.N.O.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON WALL SHEATHING PLWD. OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL U.N.O.
10. "—▷⊢" INDICATES MOMENT CONN. TYP. U.N.O.
11. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS. HOLDOWNS SHOWN ARE LAYING ON FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

TYPICAL FLOOR DECK:

3/4" PLWD./OSB SHEATHING, SPAN RATING 40/20
SEE GENERAL STRUCTURAL NOTES-TYPICAL
GLUE AND NAIL TO ALL JOISTS
8d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
8d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

FOUNDATION PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD CONCRETE DETAIL SHEET FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL EXCAVATION ADJACENT TO FOOTING
   C. TYPICAL SLAB JOINT DETAILS
   D. TYPICAL STEPPED FOOTING
2. WS - DENOTES CONCRETE WALL STEP.
3. F-1 - DENOTES FOOTING MARK - SEE FOOTING SCHEDULE.
4. K.C.J. - DENOTES KEYED CONSTR. JOINT - SEE STANDARD DETAIL.
5. C.J. - DENOTES CONTROL JOINT - SEE STANDARD DETAIL.
6. F-----S - DENOTES FOOTING STEP, SEE DETAIL TYPICAL.
7. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL FOR ALL DIMENSIONS, SLAB SLOPES & DEPRESSIONS NOT NOTED.
8. ALL SLABS ON GRADE ARE TO BE JOINTED AT NO MORE THAN 15'-0" EACH WAY USING JOINTS PER STANDARD DETAIL. IN ADDITION, NO SECTION OF CONCRETE SHALL HAVE AN ASPECT RATIO OF GREATER THAN 1 1/2:1. PROVIDE (2) #4 x 4'-0" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. ALL COLUMN ISOLATION JOINT CORNERS ARE TO BE INTERSECTED BY A SLAB JOINT OR REINFORCED WITH SLAB BARS PER ABOVE. SUBMIT COMPLETE JOINT LAYOUT PLAN TO THE ARCHITECT FOR PRIOR REVIEW.
9. ALL WOOD TO CONTACT w/ CONC. OR MASONRY TO BE P.T. OR REDWOOD TYP.
10. ALL FOUNDATION PL. ANCHOR BOLTS TO USE A MIN. 3x3x1/4 PL. WASHERS TYP.

FREE-STANDING RETAINING WALL, SEE DET. 7/ S3.1 FOR SCHED.

CONCRETE POUR NOTES:

1. VERIFY FTG STEP LOCATIONS AND HEIGHT IN FIELD PRIOR TO FORMING FOOTINGS. MAKE FTG REBAR CONTINUOUS THROUGH FTGS WITH BENT BARS AT CORNERS. LAP BARS 40 BAR DIAMETERS AT SPLICES AND TIE.
2. DO NOT POUR ANY CONCRETE UNTIL THE FORMS ARE ADEQUATELY BOLSTERED AND SUPPORTED AND ALL REBAR IS IN PLACE AND SECURED.
3. DO NOT PERMIT FIN. GRADE TO COME CLOSER THAN 6" TO TOP OF CONCRETE.
4. FOR FOUNDATIONS REBAR INSPECTIONS FOR FOUNDATION WALLS OVER 8'-0", FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED AND APPROVED.
5. PROVIDE A U-FER GROUND DURING CONSTRUCTION OF FOOTING & FOUNDATION.
6. ALL FASTENERS (IE NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (IE SILL PLATES) SHALL BE HOT-DIPPED, ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER(MEET THE REQUIREMENTS OF IBC 2304.9.5.)
7. ALL L ANGLES FOR SUPPORTING VENEERS ARE HOT-DIPPED GALVANIZED.

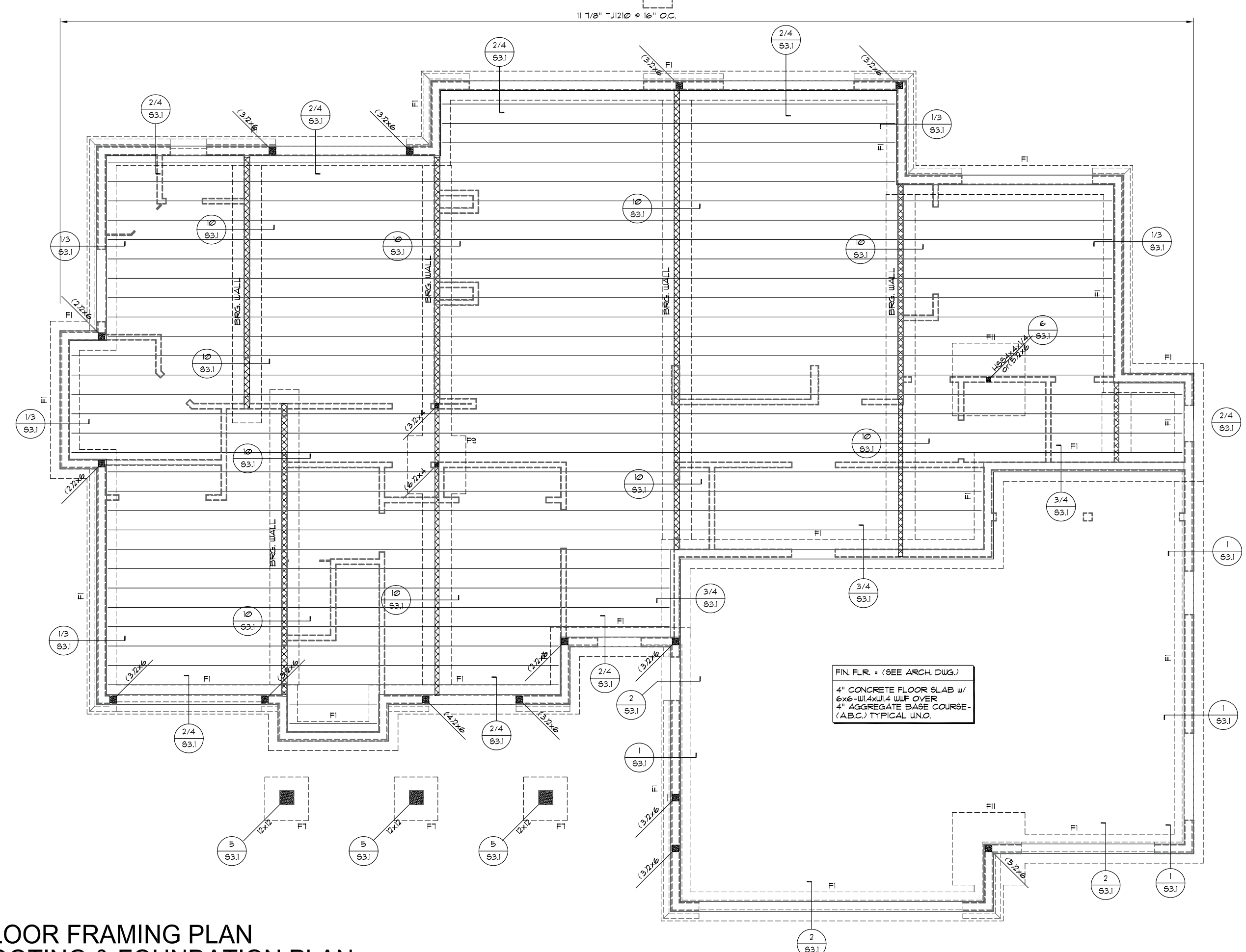
FOOTING SCHEDULE

BASED ON SOIL BEARING = 1500 PSF ARCH/CONTRACTOR VERIFY IT

MARK	SIZE	REINFORCING	REMARKS
F1	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	
F2	2'-6" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F3	3'-0" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F4	1'-4" x CONT. x 12"	(2) #4 CONT.	THICKENED SLAB
F5	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	THICKENED SLAB
F6	2'-6" SQ. x 12"	(2) #5 E.W.	
F7	3'-0" SQ. x 12"	(3) #5 E.W.	
F8	3'-6" SQ. x 12"	(4) #5 E.W.	
F9	4'-0" SQ. x 12"	(4) #5 E.W.	
F10	4'-6" SQ. x 12"	(5) #5 E.W.	
F11	5'-0" SQ. x 12"	(5) #5 E.W.	
F12	5'-6" SQ. x 13"	(6) #5 E.W.	
F13	6'-0" SQ. x 13"	(6) #5 E.W.	
F14	7'-0" SQ. x 14"	(6) #6 E.W.	
F15	8'-0" SQ. x 16"	(8) #7 E.W.	
F16	4'-0" x CONT. x 12"	(4) #5 CONT. #5x3'-6"@12" O.C.	
F15	9'-0" SQ. x 18"	(9) #8 E.W.	

EPOXY BOLTS CALLED OUT ON PLAN ARE SIMPSON "SET" FOR CMU APPLICATION (ICC ESR1772) & HILTI HIT RE 500-SD EPOXY BOLTS FOR CONC. APPLICATIONS (ICC ES ESR 2322).
THE INSTALLING REQUIREMENT FOR ANCHOR BOLTS AND/OR REBAR DOWELS ARE AS FOLLOWED:

DIAMETER	DRILL DIA.	EMBED. DEPTH	EDGE DIST.	SPACING DIST.
1/2"	5/8"	4 1/4"	1 3/4"	6 3/8"
5/8"	3/4"	5"	1 3/4"	7 1/2"
3/4"	7/8"	6 3/4"	1 3/4"	10 1/8"



FLOOR FRAMING PLAN
FOOTING & FOUNDATION PLAN
SCALE 1/4" = 1'-0"

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
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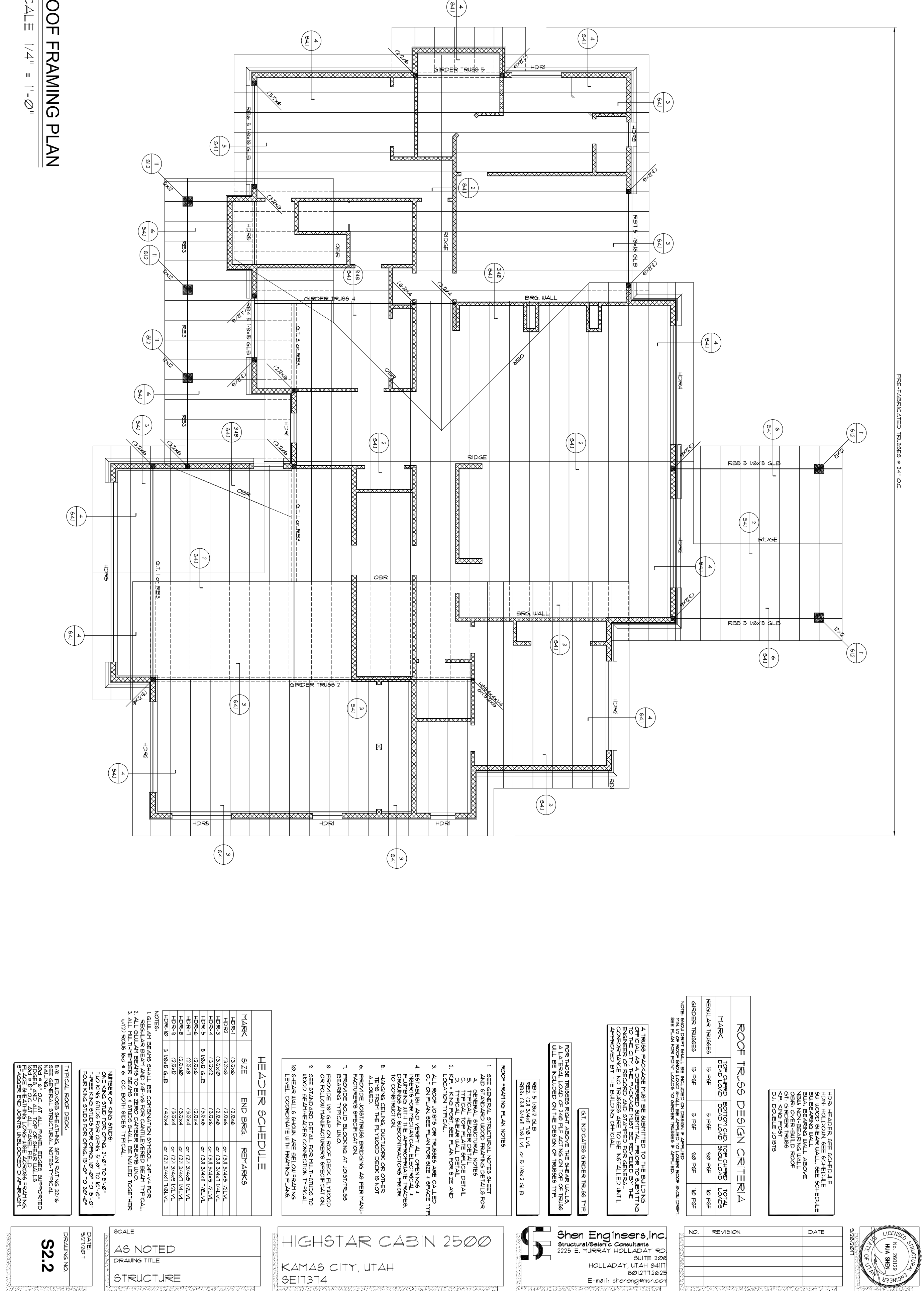
SCALE: AS NOTED
DRAWING TITLE: STRUCTURE
DATE: 9/27/2017
DRAWING NO. S2.1


ROOF FRAMING PLAN
SCALE 1/4" = 1'-0"
HIGHSTAR CABIN 2500
KAMAS CITY, UTAH
SE17374
Shen Engineers,Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD.
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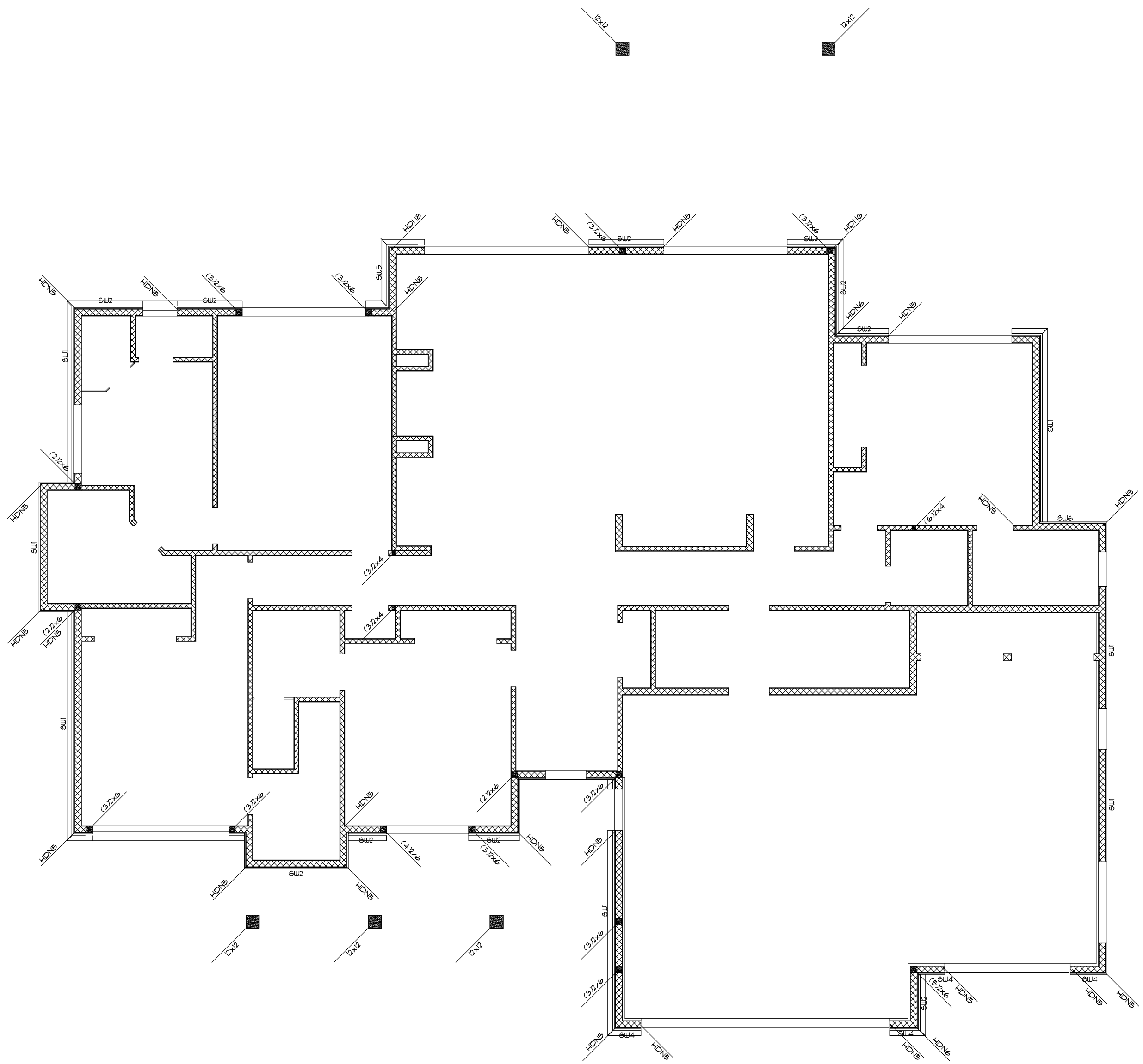
SCALE
AS NOTED
DRAWING TITLE
STRUCTURE
DRAWING NO.
S2.2
DATE
9/27/2017
NO.
REVISION
DATE
HEADER SCHEDULE
ROOF TRUSS DESIGN CRITERIA
ROOF FRAMING PLAN NOTES:



HOLDOWN & SHEARWALL PLAN

SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	HOLDOWN EACH END: END STUD	HOLDOWN EACH END: ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B

(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"ϕ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"ϕ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"ϕ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"ϕ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"ϕ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(W) INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ HEIGHT \ MARK	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

NOTES: 1. FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

NOTES: FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
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9/28/2017

NO.	REVISION	DATE

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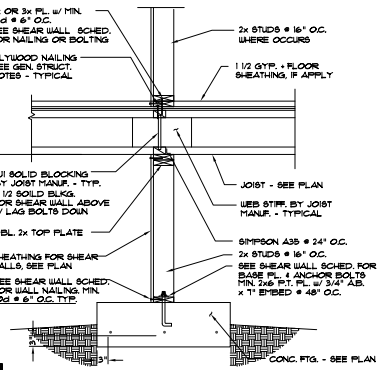
S2.3



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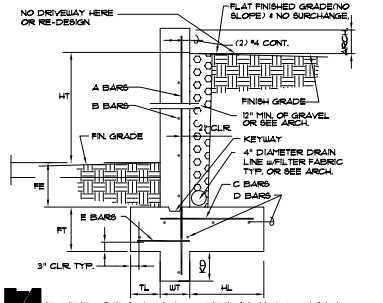
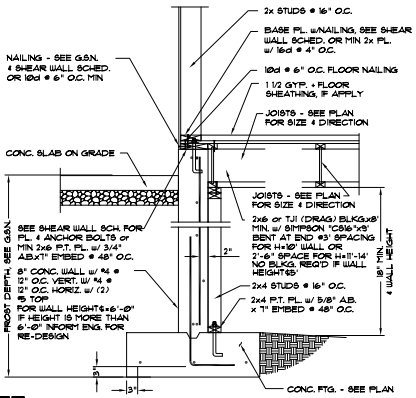
TYPICAL CONCRETE RETAINING WALL SCHEDULE											
MARK	HT. (max)	FE	TL	WT	HL	FT	KD	A	B	C	D	E
W1	2'-0"	2'-6"	8"	8"	12"	12"	Ø	#4 @ 16"	#4 @ 18"	NONE	#4 @ 12"	NONE
W2	4'-0"	2'-6"	1'-3"	8"	1'-3"	12"	Ø	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W3	6'-0"	2'-6"	2'-0"	8"	2'-0"	12"	Ø	#5 @ 10"	#5 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W4	8'-0"	2'-6"	2'-10"	8"	2'-10"	15"	Ø	#6 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 12"
W5	10'-0"	2'-6"	3'-10"	10"	3'-10"	18"	Ø	#7 @ 12"	#5 @ 12"	#5 @ 10"	#5 @ 12"	#5 @ 12"



7 FREE-STANDING RETAINING WALL



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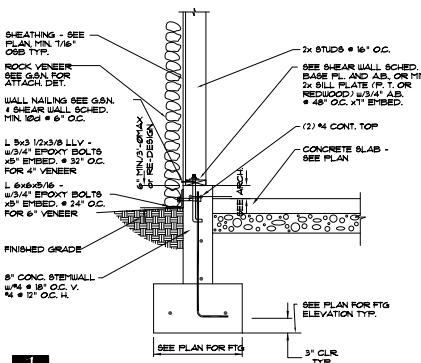

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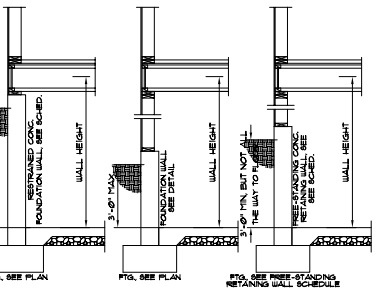
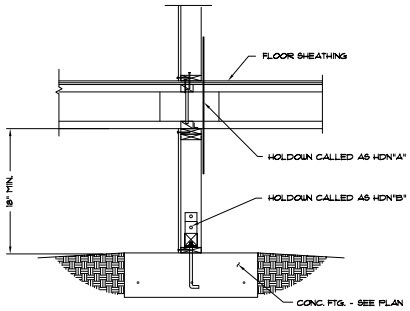
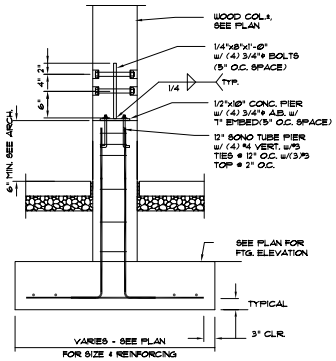


11 BASEMENT RETAINING WALL GUIDELINE



8 HOLDOWN ON RAISED FLOOR CALLED OUT AS HDN"A/B"



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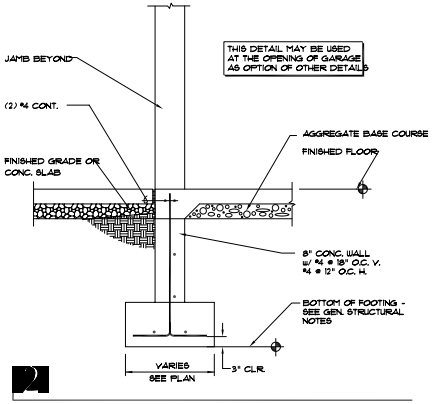

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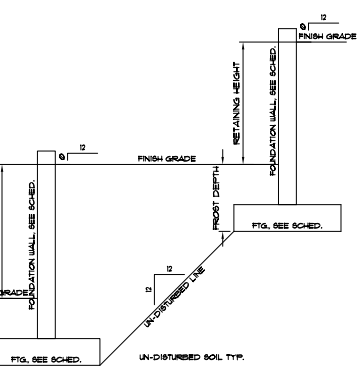
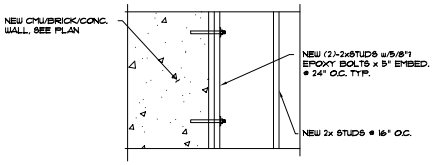
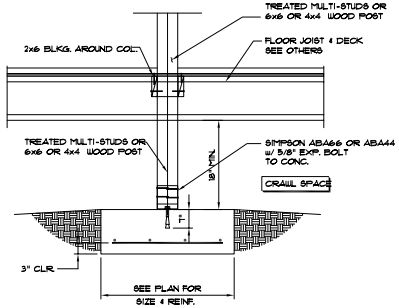


12 RETAINING WALL EXCAVATION GUIDELINE



9 CONC./CMU WALL-NEW STUD WALL CONNECTION



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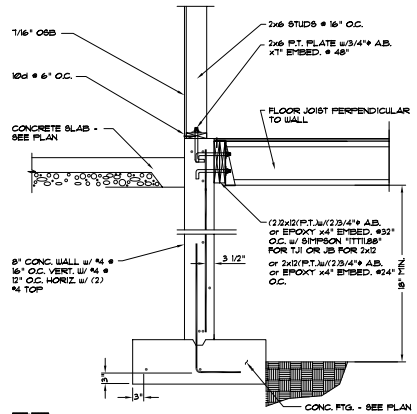

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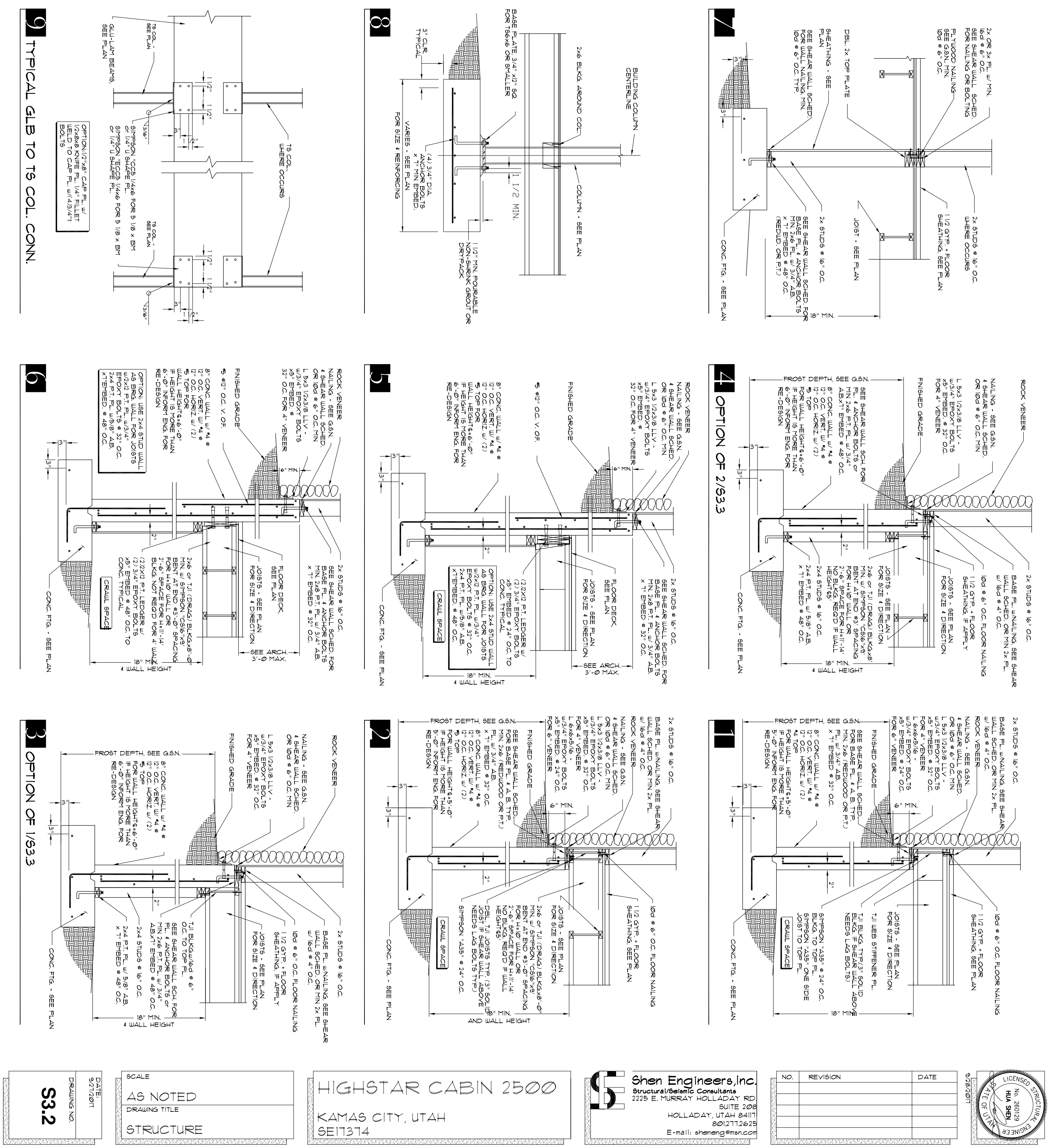
SE1314

NO.	REVISION	DATE

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 9/21/2017
DRAWING NO.: S3.1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4 OPTION OF 2/S3.3
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HIGHSTAR CABIN 2500
KAMAS CITY, UTAH
SE17374
SCALE
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DRAWING TITLE
STRUCTURE
DATE
9/27/2017
DRAWING NO.
S3.2
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REVISION
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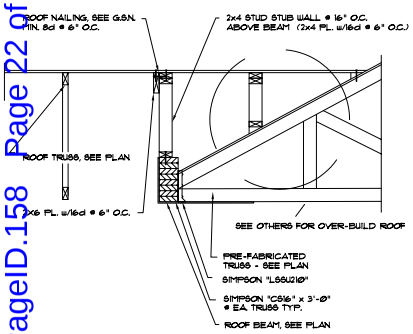
LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
9/28/2017



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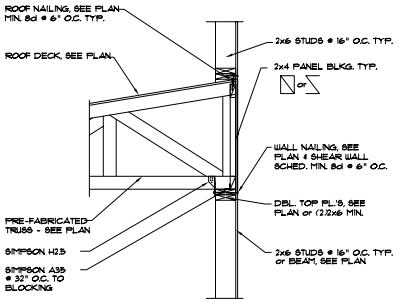

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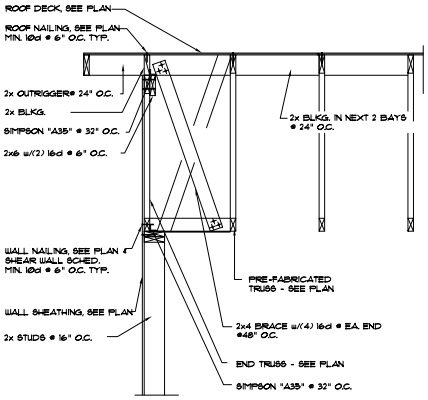

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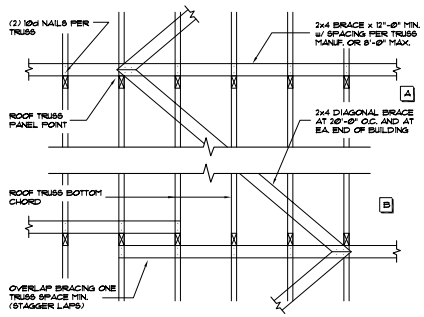
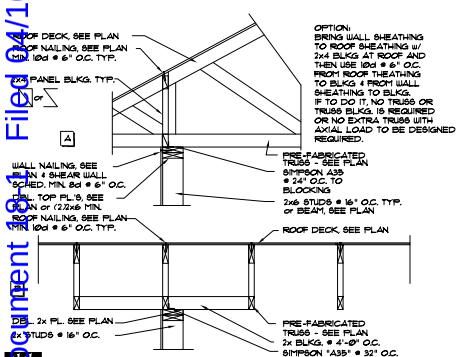


1 TYP. ROOF TRUSS BRACING (PLAN)



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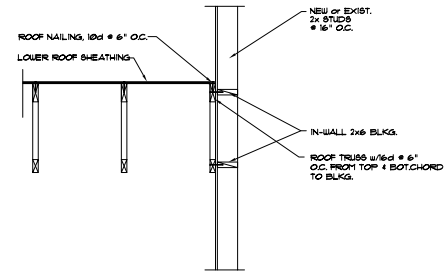

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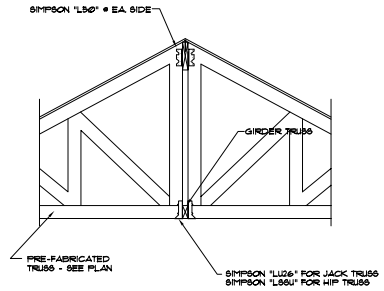

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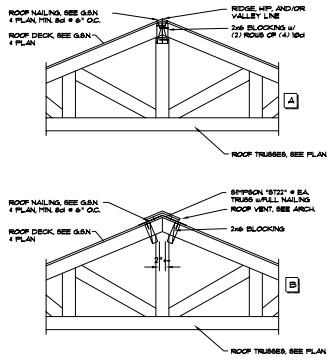
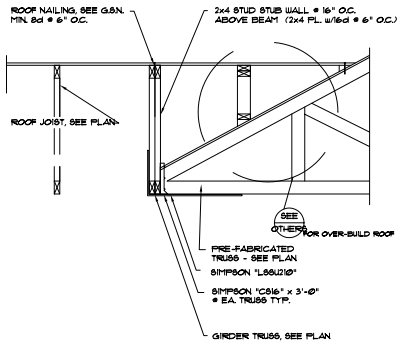


2 TYPICAL ROOF RIDGE AND HIP DETAILS



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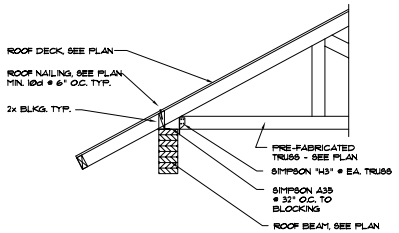

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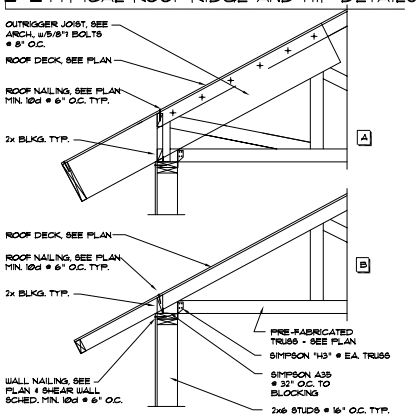

3

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
9/28/2017

NO.	REVISION	DATE

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SE17374

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 9/27/2017
DRAWING NO.: S4.1

SHEN000051

EXHIBIT B

GENERAL STRUCTURAL NOTES:

I. GENERAL:

A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS SHALL BE TYPICAL AND APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE.
B. CONTRACTOR SHALL COMPARE ALL DIMENSIONS AND CONDITIONS ON CONTRACT DOCUMENTS AND AT THE SITE. ANY OMISSION OR CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IN CASE OF ANY CONFLICT FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY ARCHITECT/ENGINEER.
C. SEE THE ARCHITECTURAL DRAWINGS FOR DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, RECESSES, DEPRESSIONS, ETC.
D. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL PORTIONS OF THE BUILDING UNTIL THE ENTIRE STRUCTURE OF THE BUILDING IS COMPLETE.
E. OBSERVATION VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVES SHALL NOT BE CONSTRUED AS INSPECTION OR APPROVAL OF CONSTRUCTION.
F. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN UTAH.

II. DESIGN CRITERIA:

A. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) W/ AMENDMENTS
B. LOADINGS:
   1. ROOF SNOW LOAD = 90 PSF + SNOW DRIFT PER IBC
   2. TYPICAL FLOOR LIVE LOAD = 40 PSF
   3. WIND LOAD - 115 MPH ZONE - EXPOSURE C
   4. SEISMIC DESIGN DATA: SDC-D2, Ss=0.98,S1=0.300,I=1,R=6.5, Fa=1.2, WOOD SHEAR WALL SYSTEM, V=0.102, IRREGULARITY=1.0, SITE CLASS: D, EQUIVALENT LATERAL FORCE PROCEDURE
C. FOUNDATION:
   1. ALL EXTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 36" BELOW LOWEST ADJACENT FINISH FLOOR OR FINISH GRADE ONTO UNDISTURBED EXISTING SUBSOILS HAVING A MINIMUM NET BEARING CAPACITY OF 1500 PSF. ALL INTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 1'-3" BELOW LOWEST ADJACENT FINISH FLOOR ONTO SUBSOILS.

III. CONCRETE:

A. ALL MATERIALS SHALL COMPLY WITH ACI 318 AND ACI 347 PUBLICATIONS AND APPLICABLE ASTM PUBLICATIONS.
B. CONCRETE MATERIAL PROPERTIES: 28-DAY COMPRESSIVE STRENGTHS ARE TO BE 3000 PSI TYPICAL UNLESS NOTED OTHERWISE. DESIGN BASED ON 2500 PSI.
C. CAST IN PLACE CONCRETE:
   1. SPACING OF CONSTRUCTION JOINTS OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 40 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
   2. PROVIDE EXTRA REINFORCING AROUND ALL OPENINGS EXCEEDING 24 INCHES SQUARE OR ROUND IN ALL SLABS AND WALLS EQUAL TO TWO #5 BARS ON FOUR SIDES AND EXTEND TWO FEET BEYOND THE OPENING.
   3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
   4. PROVIDE CLASS B LAP SPLICES FOR ALL REINFORCING UNLESS NOTED OTHERWISE.
   5. PROVIDE ISOLATION JOINTS AROUND ALL COLUMNS AT ALL EXPOSED SLAB ON GRADE AREAS.

IV. REINFORCING STEEL:

A. ALL BARS #4 AND LARGER TO BE ASTM A 615, GRADE 60. ALL #2 AND #3 BARS TO BE ASTM A 615, GRADE 40. DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI-318, LATEST ADOPTION.
B. ALL REINFORCING STEEL SHALL BE BENT, DETAILED AND CHAIRED AS PER "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES".
C. WELDED WIRE FABRIC TO BE IN ACCORDANCE WITH ASTM A 185.
D. ALL BARS INDICATED ON THE PLANS TO BE WELDED SHALL CONFORM TO ASTM A706 (GRADE 60).
E. CONCRETE COVER REQUIREMENTS FOR DEFORMED BAR REINFORCING STEEL SHALL COMPLY WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE".
   1. CAST-IN-PLACE CONCRETE:
      a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
      b) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
         #6 BARS AND LARGER: 2"
         #5 BARS AND SMALLER: 1-1/2"
      c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
         SLABS, WALLS JOISTS: #11 BARS OR SMALLER: 3/4"
         BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1-1/2"
F. DETAILING: SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE ONLY AFTER REVIEW AND APPROVAL. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
   1. LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
      30 BAR DIAMETER FOR #3 AND #4 BARS
      40 BAR DIAMETER FOR #5 THROUGH #8 BARS
      DO NOT SPLICE STIRRUPS AND TIES
      DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN.
   2. ALL EMBEDMENTS AND DOWELS SHALL BE SECURELY TIED TO FORMWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

V. STRUCTURAL AND MISCELLANEOUS STEEL:

A. MATERIAL PROPERTIES:
   1. ALL SHAPES, PLATES, ANGLES, AND CHANNELS TO BE ASTM A-36 UNLESS NOTED OTHERWISE.
   2. ALL WF SHAPES WEIGHING 84 POUNDS PER LINEAR FOOT OR LESS TO BE ASTM A 572, GRADE 50. ALL WF SHAPES WEIGHING MORE THAN 84 POUNDS PER LINEAR FOOT TO BE ASTM A 572, GRADE 36.
   3. SQUARE OR RECTANGULAR TUBES TO BE ASTM A 500, GRADE B, Fy = 46 KSI.
   4. ALL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS, LATEST ADOPTION.
B. WELDING:
   1. FOR STRUCTURAL STEEL TO BE IN ACCORDANCE WITH A.W.S. REQUIREMENTS FOR E70XX ELECTRODES.
C. BOLTS:
   1. ALL BOLTS TO BE 3/4" DIAMETER ASTM A 325-N UNLESS NOTED OTHERWISE.
   2. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.
   3. ANCHOR BOLTS SHALL BE ASTM A 307 OR A 36.

VI. WOOD:

A. DIMENSIONAL LUMBER: ALL TO BE GRADE STAMPED PER W.C.L.B. RULES.
   1. ALL JOISTS, BEAMS, PLATES, HEADERS AND OTHER LUMBER TO BE D.FIR/LARCH #2 UNLESS OTHERWISE NOTED.
   2. 2 X 4 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
   3. 2X 6 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
   4. PURLINS TO BE D.FIR DENSE #1.
   5. 4X AND 6X POSTS TO BE D.FIR/LARCH NO.1.
   6. WALL STUDS TO BE D.FIR/LARCH #2 GRADE OR BETTER.
B. WOOD DECKING: FLOOR DECKING SHALL BE COMMERCIAL 2 X 6 (NOMINAL TONGUE AND GROOVE DECKING, HEM-FIR OR BETTER WITH A REPETITIVE Fb OF 1450 PSI MINIMUM.
C. GLU-LAMS:
   1. TO BE GRADE STAMPED PER A.I.T.C., D.FIR/LARCH COMBINATION 24F-V8 FOR CONTINUOUS SPANS AND D.FIR/LARCH COMBINATION 24F-V4 FOR SIMPLE SPANS. GLUED WITH WATERPROOF GLUE.
D. PLYWOOD:
   1. ROOF SHEATHING TO BE STD 5/8" OSB OR C-D WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
   2. FLOOR SHEATHING TO BE STD 3/4" OSB OR C-C T&G WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 8d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 8d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
   3. EXTERIOR WALLS TO BE STD 7/16" OSB OR 1/2" C-C WITH EXTERIOR GLUE. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING AND NAILING.
E. PLYWOOD WEB I JOISTS:
   1. TO BE DESIGNED, DETAILED AND FABRICATED BY TRUS-JOIST AND HAVE THE APPROVAL OF ICBO.
   2. JOISTS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
   3. DESIGN JOISTS FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
F. SPECIAL TREATMENTS (AMERICAN WOOD PRESERVERS INSTITUTE STANDARDS):
   1. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL: PRESSURE TREAT WITH WOLMAN CCA PRESERVATIVE OR EQUAL AS APPROVED BY THE ARCHITECT.
   2. FIRE RETARDANT: PRESSURE TREAT WITH DRICON OR EQUAL AS APPROVED THE ARCHITECT.
G. WOOD NAILING SCHEDULE:
   1. JOIST TO SILL OR GIRDER, TOENAIL 3-8d
   2. BRIDGING TO JOIST, TOENAIL EACH END 2-8d
   3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST FACE NAIL 2-8d
   4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST, FACE NAIL 3-8d
   5. SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL 2-16d
   6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL 2-16d
   7. TOP PLATE TO STUD, END NAIL 2-16d
   8. STUD TO SOLE PLATE TOENAIL 4-8d OR FACE NAIL 2-16d
   9. DOUBLE STUDS, FACE NAIL 16d @ 24" o.c.
   10. DOUBLED TOP PLATES, FACE NAIL 16d @ 16" O.C.
   11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2-16d
   12. CONTINUOUS HEADER, 2 PIECES 16d @ 16"O.C. ALONG 2 EDGES
   13. CEILING JOISTS TO PLATE, TOENAIL 3-8d
   14. CONTINUOUS HEADER TO STUD, TOENAIL 4-8d
   15. CEILING JOIST, LAPS OVER PARTITIONS FACE NAIL 3-16d
   16. CEILING JOIST TO PARALLEL RAFTERS FACE NAIL 3-16d
   17. RAFTER TO PLATE, TOENAIL 4-8d
   18. BRACE TO EACH STUD AND PLATE, FACE NAIL 2-8d
   19. 1"X8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL 2-8d
   20. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL 3-8d
   21. BUILT UP CORNER STUDS 16d @ 24" O.C.
   22. BUILT-UP GIRDERS AND BEAMS 20d @ 32"O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT EACH END & SPLICE
   23. PLANKS 2-16d AT EACH BEARING

VII. MISCELLANEOUS:

A. GYPSUM WALLBOARD: FOR SHEAR WALLS TO BE STANDARD 1/2" GYPSUM WALLBOARD. NAIL WITH 5D COOLER NAILS AT 7" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
B. STUCCO: FOR SHEAR WALLS TO BE STANDARD 7/8" PORTLAND CEMENT PLASTER ON EXPANDED METAL OR WOVEN WIRE LATH. NAIL WITH NO.11 GAGE, 1 1/2" LONG, 7/16" HEAD NAILS OR NO.16 GAGE STAPLES WITH 7/8" LONG LEGS AT 6" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.

VIII. SPECIAL INSPECTION: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.
A. EPOXY BOLTS IN TENSION IF APPLY.

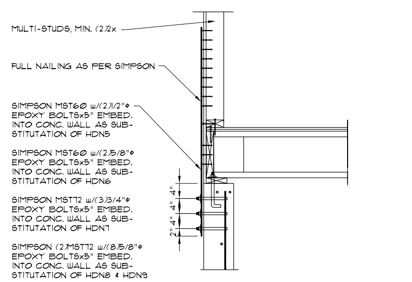
IX. BRICK AND/OR STONE VENEER NOTES:
   1. TO WOOD STUD WALLS: VENEER SHALL BE ATTACHED TO THE WOOD STUDS WITH A 1" MINIMUM WIDE X 22 GAUGE, GALVANIZED, CORRUGATED BRICK TIE SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER. CORRUGATED METAL TIES SHALL FORM A 180-DEGREE HOOK AROUND THE NO. 9 GAUGE WIRE USED AS HORIZONTAL JOINT REINFORCEMENT IN THE VENEER. SPOT BEDDING AT THE CORRUGATED TIES SHALL BE OF CEMENT MORTAR ENTIRELY SURROUNDING THE TIES. ATTACH TIES TO STUDS WITH A MINIMUM #10 X 1 1/2" WOOD SCREW.
   2. TO CONCRETE WALLS: 22 GAUGE GALVANIZED DOVETAIL SLOTS SHALL BE INSTALLED VERTICALLY IN CONCRETE AT 16" O.C. VENEER SHALL BE ATTACHED TO THE CONCRETE WITH 1" X 22 GAUGE, CORRUGATED, GALVANIZED DOVETAIL BRICK ANCHORS OR 3/16" DIAMETER GALVANIZED DOVETAIL TRIANGLE WIRES SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER.
   3. OTHER METHODS OF ATTACHMENT MAY BE USED AFTER WRITTEN ACCEPTANCE BY THE ARCHITECT AND STRUCTURAL ENGINEER.

X. PREFABRICATED WOOD TRUSSES:

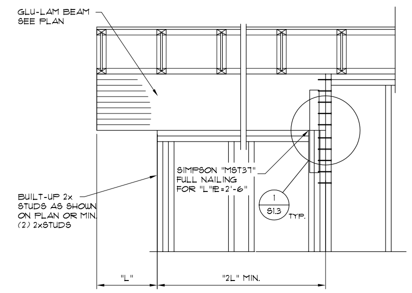
   1. TO BE "GANG-NAIL" OR "ALPINE" OR APPROVED EQUAL DESIGNED, DETAILED AND FABRICATED IN ACCORDANCE WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING" AND THE TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION.
   2. LOADING:
      a) TRUSS TOP CHORDS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
      b) TRUSS BOTTOM CHORDS ARE TO BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 5 PSF.
      c) DESIGN TRUSSES FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
      d) FOR TRUSSES MANUFACTURED SUCH THAT ALL CHORDS ARE MSR LUMBER AND ALL CHORD SPLICES ARE FINGER JOINTS AND PROOF LOADED IN ACCORDANCE WITH U.B.C STANDARDS, THE ALLOWABLE STRESS INCREASE FOR DURATION OF LOAD MAY BE THE MAXIMUM PERMITTED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING", LATEST ADOPTION.
   3. SUBMITTALS:
      a) COMPLETE DESIGN CALCULATIONS SHALL BE FURNISHED TO THE ENGINEER FOR EACH TRUSS. CALCULATIONS MUST BE PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF UTAH.
      b) SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
      c) THE TRUSS MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE TRUSS QUALITY IS IN CONFORMANCE TO "QUALITY STANDARD FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION, PUBLISHED BY THE TRUSS PLATE INSTITUTE.
      d) THE TRUSS MANUFACTURER SHALL HAVE A QUALITY ASSURANCE PROGRAM IN ACCORDANCE WITH SECTION 25-1739 OF UBC STANDARD NO. 25-17 AND PROVIDE WRITTEN CERTIFICATION OF COMPLIANCE FROM THE INDEPENDENT TESTING AGENCY.
   4. GENERAL:
      a) ALL TRUSSES AND RELATED BRACING SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS.
      b) LUMBER USED FOR CHORDS AND WEBS SHALL HAVE A MAXIMUM MOISTURE CONTENT BELOW 19% AT THE TIME OF FABRICATION.
      c) ALL TRUSS MEMBERS SHALL MEET OR EXCEED VISUAL REQUIREMENTS FOR NO. 2 GRADE. NO WANE SHALL BE PERMITTED IN THE CONNECTION AREA.
      d) DESIGN LATERAL RESISTANCE VALUES FOR TRUSS PLATES AND METAL WEBS SHALL BE 80% OF ICBO ALLOWABLE LOAD VALUES.
      e) THE HANKINSON FORMULA OR STRAIGHT LINE INTERPOLATION SHALL BE USED TO DETERMINE LATERAL RESISTANCE VALUES FOR PLATE TO WOOD GRAIN ANGLES BETWEEN 0 AND 90 DEGREES.
      f) AT CHORD SPLICE LOCATIONS, MAXIMUM TENSION FORCES SHALL BE AS FOLLOWS:

PLATE GAGE	2X4	2X6
20	3500 #	5000 #
18	4800 #	7000 #
16	6000 #	9000 #

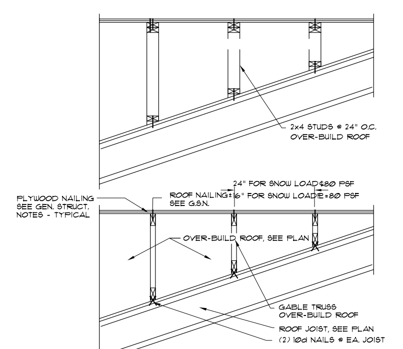
      g) THE AXIAL FORCE FOR A 2X4 WEB SHALL NOT EXCEED 3500 LBS.
      h) TRUSS PLATES SHALL BE SIZED SO THAT THEY CAN BE CENTERED BOTH HORIZONTALLY AND VERTICALLY ON THE JOINT UNLESS THE CHORD DEPTH OR THE TRUSS GEOMETRY PROHIBITS SUCH PLACEMENT.
      i) EVERY TRUSS PLATE SHALL BE FULLY EMBEDDED INTO THE UNDERLYING WOOD ACROSS THE ENTIRE CONTACT AREA.
      j) ALL TRUSSES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "HANDLING AND ERECTING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE. TEMPORARY BRACING SHALL BE INSTALLED DURING ERECTION AS REQUIRED BY THE LATEST EDITION OF "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE.



4 HOLDOWN INSTALLATION WITH EPOXY BOLTS



1 TYP. IN-WALL CANTILEVERED EAVE BEAM



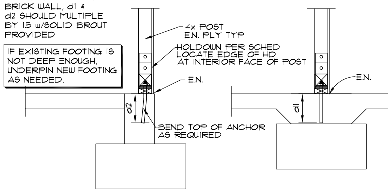
2 SUGGESTED OVER-BUILD ROOF DETAIL

HOLDOWN ALTERNATES w/ SIMPSON "SET-XP" - ESR2508					
HOLDOWNS CALLED OUT ON PLAN	SIMPSON HOLDOWNS	NEW ANCHORS SIMPSON "SET-XP"	d1*	d2*	d2 @ CORNER
HDN5	HDU2	5/8"φ	6"	6"	10"
HDN6	HDU5	5/8"φ	6"	8"	14"
HDN7	HDU8	7/8"φ	8"	13 1/2"	
HDN8	HDU11	1"φ	8"	16"	
HDN9	HDU14	1"φ	12"	19"	

SPECIAL INSPECTION AND PULL TEST IS REQUIRED

FOR (E) DBL. WYTHE BRICK WALL, d1 & d2 SHOULD MULTIPLE BY 1.5 w/SOLID BROUT PROVIDED

IF EXISTING FOOTING IS NOT DEEP ENOUGH, UNDERPIN NEW FOOTING AS NEEDED.



3 HOLDOWN INSTALLATION WITH EPOXY BOLTS

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
10/5/2017

NO.	REVISION	DATE

Shen Engineers,Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD
SUITE 208
HOLLADAY, UTAH 84117
801.277.2625
E-mail: shenengr@msn.com

HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 10/5/2017
DRAWING NO.
S1.1

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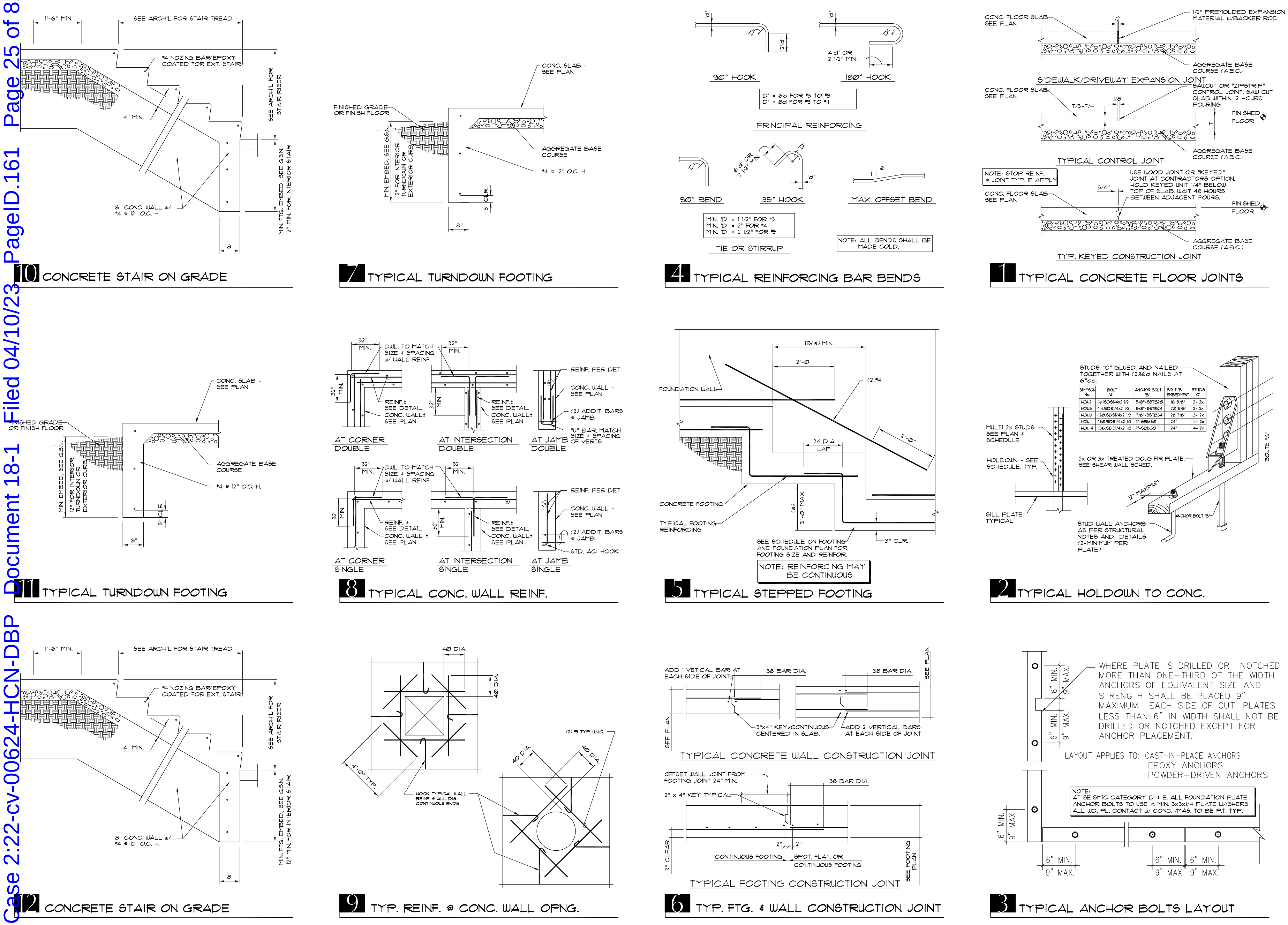

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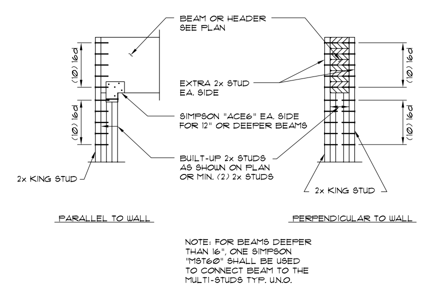
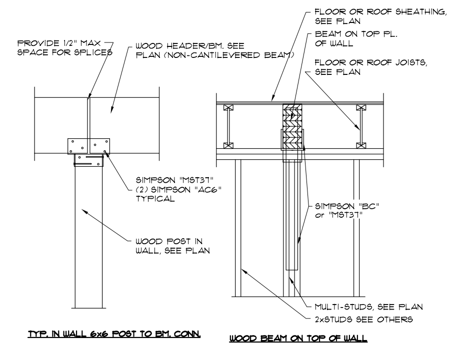
KAMAS CITY, UTAH
SE17375

SCALE
AS NOTED
DRAWING TITLE
STRUCTURE

DATE: 10/5/2017
DRAWING NO.
S1.2



1 TYPICAL WOOD HEADER OR BEAM TO MULTI-STUDS CONNECTION



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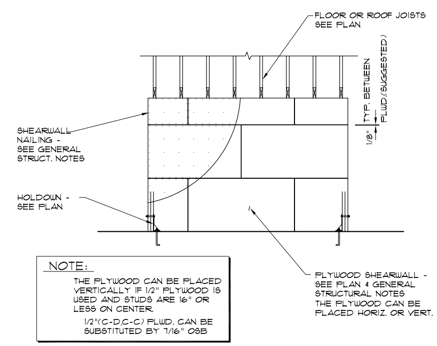
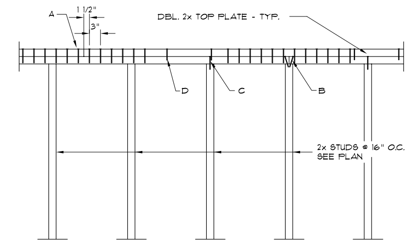


3 TYPICAL SHEAR WALL ELEVATION



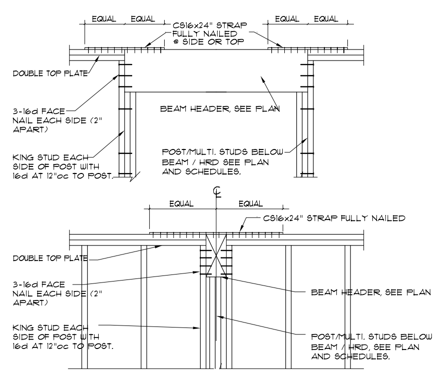
NAILING SCHEDULE	
MARK	DESCRIPTION
A	(24) 16d NAILS AT 3"O.C. .
B	2 - 16d NAILS AT THE END OF EACH PLATE (TOP OR BOTTOM) 4 - TOTAL.
C	2 - 16d NAIL AT EACH STUD.
D	NAIL TOP AND BOTTOM PLATES TOGETHER WITH 2 - 16d NAILS AT 16"O.C. TYPICAL.

THE TOP PL'S. HAVE TO BE INSTALLED CONTINOUSLY. IF THEY ARE DIS-CONTINUED BY STEEL COLUMNS, PIPES ETC., INSTALL CS16x24"MIN.(12" FROM EA. SIDE) TO TOP PLATE TYP. U.N.O.

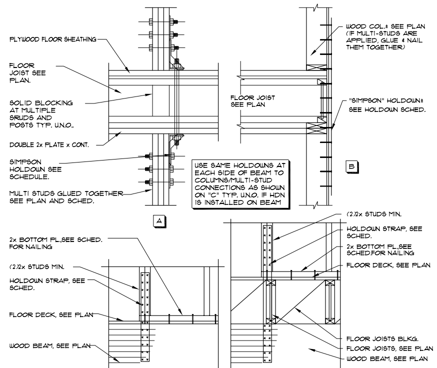
4 TYPICAL TOP PLATE SPLICE

NAIL/STAPLE EQUIVALENT TABLE.				
FLOORS AND ROOF				
NAILS		STAPLES		
SIZE	SPACING	SIZE	SPACING	LENGTH
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	2 1/2"	14 GA	2 1/2"	1 1/2"
8d	2"	14 GA	2"	1 1/2"
10d	6"	14 GA	4"	1 5/8"*
10d	4"	14 GA	2 1/2"	1 5/8"*
10d	2 1/2"	14 GA	2"	1 5/8"*
* IN 3/4" PLYWOOD USE 2" STAPLES				
WALL				
3/8" PLYWOOD				
8d	6"	14 GA	6"	1 3/8"
8d	4"	14 GA	4"	1 3/8"
8d	3"	14 GA	3"	1 3/8"
8d	2"	14 GA	2"	1 3/8"
1/2" PLYWOOD				
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	3"	1 1/2"
8d	3"	14 GA	2 1/2"	1 1/2"
10d	6"	14 GA	4"	1 1/2"
10d	4"	14 GA	3"	1 1/2"
10d	3"	14 GA	2"	1 1/2"

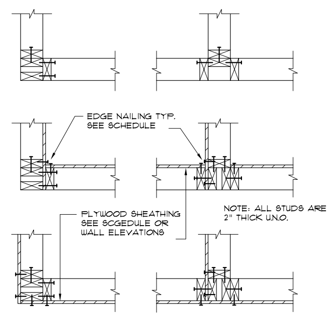
5 NAIL/STAPLE EQUIVALENT TABLE



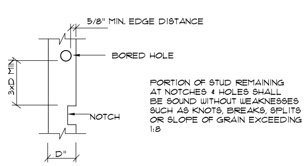
6 TYP. TOP PL. THRU BEAM HEADER IN WALL



7 HOLDOWNS AT FLOOR TO FLOOR

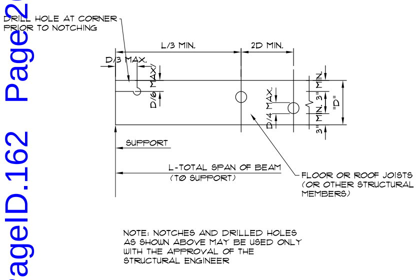


8 TYPICAL WALL INTERSECTION FRAMING

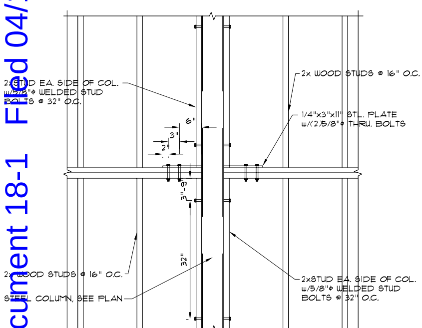


WOOD STUD SIZE	BEARING		NON-BEARING	
	MAX. HOLE (40%)	MAX. HOLE (25%)	MAX. HOLE (60%)	MAX. HOLE (40%)
2x4	1 3/8"	7/8"	2 1/8"	1 3/8"
2x6	2 3/16"	1 3/8"	3 5/16"	2 3/16"

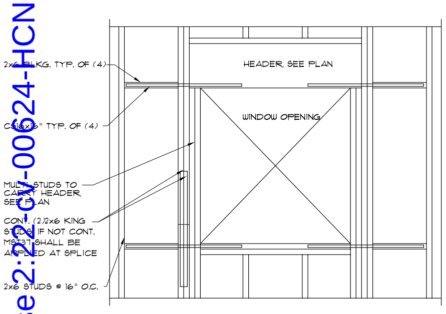
9



10 TYP. HOLES AND NOTCHING IN BEAMS



11 TYP. STEEL COLUMN TO STUD WALL CONNECTION



12 REINFORCED WINDOW OPNG. AS SHOWN ON PLAN AS

10/5/2017

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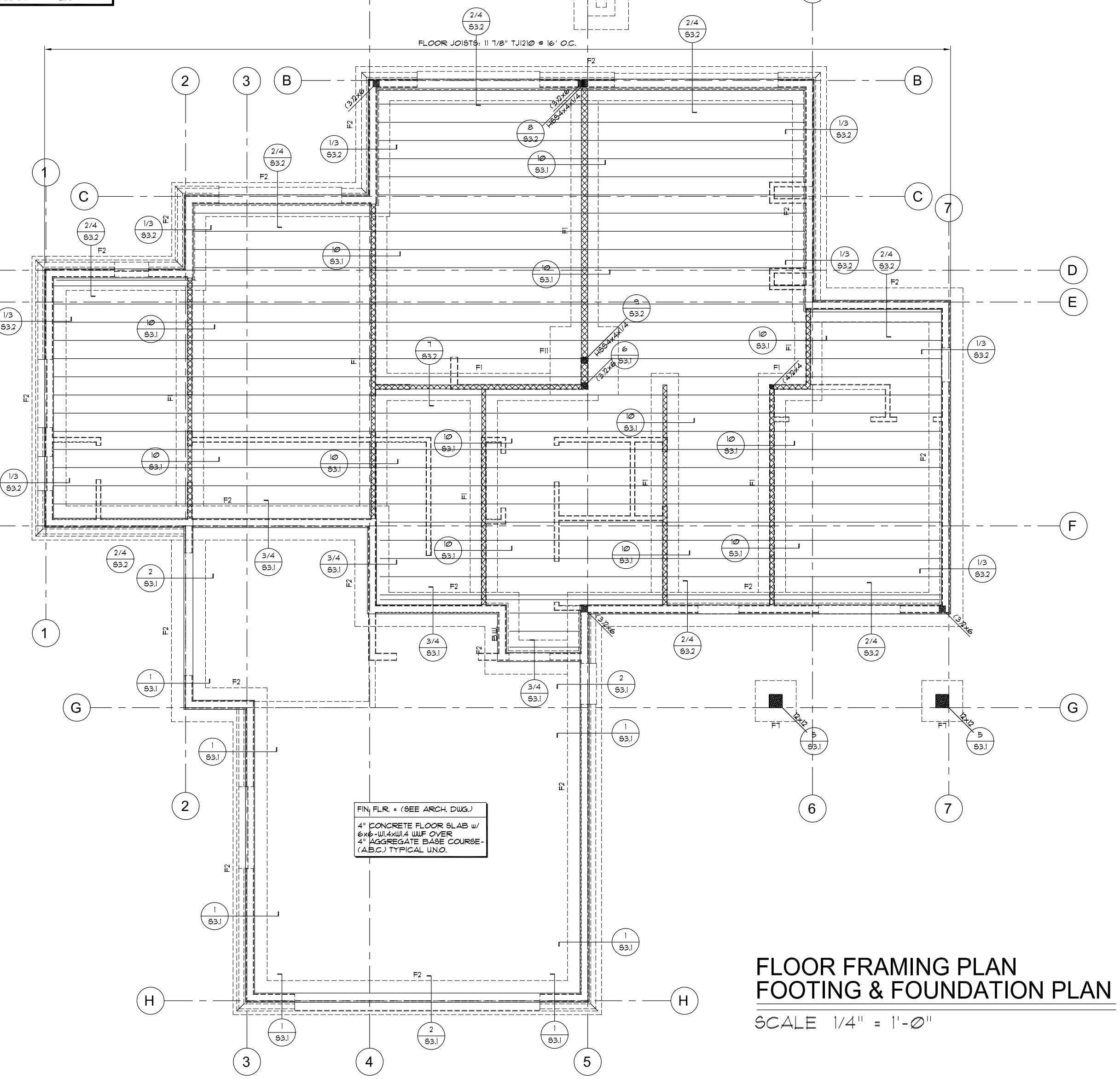
DATE:
10/5/2017

DRAWING NO.
S1.3

SCHEDULE FOR SIMPSON HANGERS ON 12" MAX. BEAMS AND JOISTS TYP.

	TOP MOUNT HANGERS	FACE MOUNT HANGERS
9 1/2" TJI SERIES	ITS	IUS
DBL. 9 1/2" TJI	MIT	MIU
11 7/8" TJI110	ITS	IUS
DBL. 11 7/8" TJI	MIT	MIU
1 3/4x LVLorPSL	WPU	HU
3 1/2x LVLorPSL	GLTV	HU/HGU
5 1/4x LVLorPSL	GLTV/HGLTV	HU/HGU
7x LVLorPSL	HGLTV	HGUS
3 1/8x GLB	GLST	
5 1/8x GLB	GLST	
6 3/4x GLB	GLST	
8 3/4x GLB	HGLST	
2x JOISTS	HU	LUS
(2)2x	HUS-2TF	LUS
(3)2x	HUS-3TF	LUS



FLOOR FRAMING PLAN
FOOTING & FOUNDATION PLAN

SCALE 1/4" = 1'-0"

NOTE: FOR ALL (2)1 3/4x11 7/8LVL BM PROVIDE MIN. (2)2x6 AS END BEARINGS TYP. U.N.O.

UB1/MB1/LB1/FB1: (2)1 3/4x11 7/8 LVL
UB2/MB2/LB2/FB2: (3) 1 3/4x11 7/8 LVL or 5 1/8x12 GLB

THE GLB BEAMS CAN BE SUBSTITUTED BY PSL (orLVL)BEAMS AS FOLLOWS:
(IT DOESN'T WORK FROM PSL(orLVL) TO GLB TYP.)

3 1/8x9GLB	3 1/2x9 1/2PSL/(2)1 3/4x9 1/2LVL
3 1/8x12GLB	3 1/2x11 7/8PSL/(2)1 3/4x11 7/8LVL
5 1/8x12GLB	5 1/4x11 7/8PSL/(3)1 3/4x11 7/8LVL
5 1/8x15GLB	5 1/4x16PSL/(3)1 3/4x16LVL
5 1/8x18GLB	5 1/4x18PSL/(3)1 3/4x18LVL
6 3/4x12GLB	7x11 7/8PSL/(4)1 3/4x11 7/8LVL

FLOOR FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND STANDARD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL SHEAR WALL DETAIL
   D. TYPICAL TOP PLATE SPLICE DETAIL
2. HDR-1 = HEADER, SEE HEADER SCHEDULE TYPICAL.
3. ALL FLOOR MEMBERS ARE TO BE 11 7/8" TJI 210 TYPICAL. U.N.O.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON WALL SHEATHING PLWD. OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL U.N.O.
10. "—▷" INDICATES MOMENT CONN. TYP. U.N.O.
11. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS. HOLDOWNS SHOWN ARE LAYING ON FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

TYPICAL FLOOR DECK:

3/4" PLWD./OSB SHEATHING, SPAN RATING 40/20
SEE GENERAL STRUCTURAL NOTES-TYPICAL
GLUE AND NAIL TO ALL JOISTS
8d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
8d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

FOUNDATION PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD CONCRETE DETAIL SHEET FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL EXCAVATION ADJACENT TO FOOTING
   C. TYPICAL SLAB JOINT DETAILS
   D. TYPICAL STEPPED FOOTING
2. WS - DENOTES CONCRETE WALL STEP.
3. F-1 - DENOTES FOOTING MARK - SEE FOOTING SCHEDULE.
4. K.C.J. - DENOTES KEYED CONSTR. JOINT - SEE STANDARD DETAIL.
5. C.J. - DENOTES CONTROL JOINT - SEE STANDARD DETAIL.
6. F-----S - DENOTES FOOTING STEP, SEE DETAIL TYPICAL.
7. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL FOR ALL DIMENSIONS, SLAB SLOPES & DEPRESSIONS NOT NOTED.
8. ALL SLABS ON GRADE ARE TO BE JOINTED AT NO MORE THAN 15'-0" EACH WAY USING JOINTS PER STANDARD DETAIL. IN ADDITION, NO SECTION OF CONCRETE SHALL HAVE AN ASPECT RATIO OF GREATER THAN 1 1/2:1. PROVIDE (2) #4 x 4'-0" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. ALL COLUMN ISOLATION JOINT CORNERS ARE TO BE INTERSECTED BY A SLAB JOINT OR REINFORCED WITH SLAB BARS PER ABOVE. SUBMIT COMPLETE JOINT LAYOUT PLAN TO THE ARCHITECT FOR PRIOR REVIEW.
9. ALL WOOD TO CONTACT w/ CONC. OR MASONRY TO BE P.T. OR REDWOOD TYP.
10. ALL FOUNDATION PL. ANCHOR BOLTS TO USE A MIN. 3x3x1/4 PL. WASHERS TYP.

ON STRUCTURAL PLANS AND DETAILS, THERE ARE SOME OPTIONS. ARCHITECTS PLEASE SPECIFY THE OPTIONS. IF G.C. OR OWNER HAS ANY CONCERNS ON THE OPTIONS, CONTACT ARCHITECTS TO CLARIFY THEM TYP. U.N.O.

CONTRACTOR PLEASE SEE ARCH. DWG. FOR PLUMBING LOCATION OF BATHTUB , TOILET. PLEASE OFFSET JOISTS WHERE OCCURS. USE DOUBLE JOISTS UNDER BATHTUB, KITCHEN ISLAND, AND OTHER HEAVY STUFFS.

FREE-STANDING RETAINING WALL, SEE DET. 7/ S3.1 FOR SCHED.

CONCRETE POUR NOTES:

1. VERIFY FTG STEP LOCATIONS AND HEIGHT IN FIELD PRIOR TO FORMING FOOTINGS. MAKE FTG REBAR CONTINUOUS THROUGH FTGS WITH BENT BARS AT CORNERS. LAP BARS 40 BAR DIAMETERS AT SPLICES AND TIE.
2. DO NOT POUR ANY CONCRETE UNTIL THE FORMS ARE ADEQUATELY BOLSTERED AND SUPPORTED AND ALL REBAR IS IN PLACE AND SECURED.
3. DO NOT PERMIT FIN. GRADE TO COME CLOSER THAN 6" TO TOP OF CONCRETE.
4. FOR FOUNDATIONS REBAR INSPECTIONS FOR FOUNDATION WALLS OVER 8'-0", FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED AND APPROVED.
5. PROVIDE A U-FER GROUND DURING CONSTRUCTION OF FOOTING & FOUNDATION.
6. ALL FASTENERS (IE NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (IE SILL PLATES) SHALL BE HOT-DIPPED, ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER(MEET THE REQUIREMENTS OF IBC 2304.9.5.)
7. ALL L ANGLES FOR SUPPORTING VENEERS ARE HOT-DIPPED GALVANIZED.

FOOTING SCHEDULE

BASED ON SOIL BEARING = 1500 PSF ARCH/CONTRACTOR VERIFY IT

MARK	SIZE	REINFORCING	REMARKS
F1	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	
F2	2'-6" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F3	3'-0" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F4	1'-4" x CONT. x 12"	(2) #4 CONT.	THICKENED SLAB
F5	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	THICKENED SLAB
F6	2'-6" SQ. x 12"	(2) #5 E.W.	
F7	3'-0" SQ. x 12"	(3) #5 E.W.	
F8	3'-6" SQ. x 12"	(4) #5 E.W.	
F9	4'-0" SQ. x 12"	(4) #5 E.W.	
F10	4'-6" SQ. x 12"	(5) #5 E.W.	
F11	5'-0" SQ. x 12"	(5) #5 E.W.	
F12	5'-6" SQ. x 13"	(6) #5 E.W.	
F13	6'-0" SQ. x 13"	(6) #5 E.W.	
F14	7'-0" SQ. x 14"	(6) #6 E.W.	
F15	8'-0" SQ. x 16"	(8) #7 E.W.	
F16	4'-0" x CONT. x 12"	(4) #5 CONT. #5x3'-6"@12" O.C.	
F15	9'-0" SQ. x 18"	(9) #8 E.W.	

ALL FLOOR JOISTS TO BE 11 7/8" TJI210 @ 16" O.C. TYPICAL, U.N.O.

EPOXY BOLTS CALLED OUT ON PLAN ARE SIMPSON "SET" FOR CMU APPLICATION (ICC ESR1772) & HILTI HIT RE 500-SD EPOXY BOLTS FOR CONC. APPLICATIONS (ICC ES ESR 2322).
THE INSTALLING REQUIREMENT FOR ANCHOR BOLTS AND/OR REBAR DOWELS ARE AS FOLLOWED:

DIAMETER/DRILL DIA./EMBED. DEPTH/EDGE DIST./SPACING DIST.
1/2" / 5/8" / 4 1/4" / 1 3/4" / 6 3/8"
5/8" / 3/4" / 5" / 1 3/4" / 7 1/2"
3/4" / 7/8" / 6 3/4" / 1 3/4" / 10 1/8"

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
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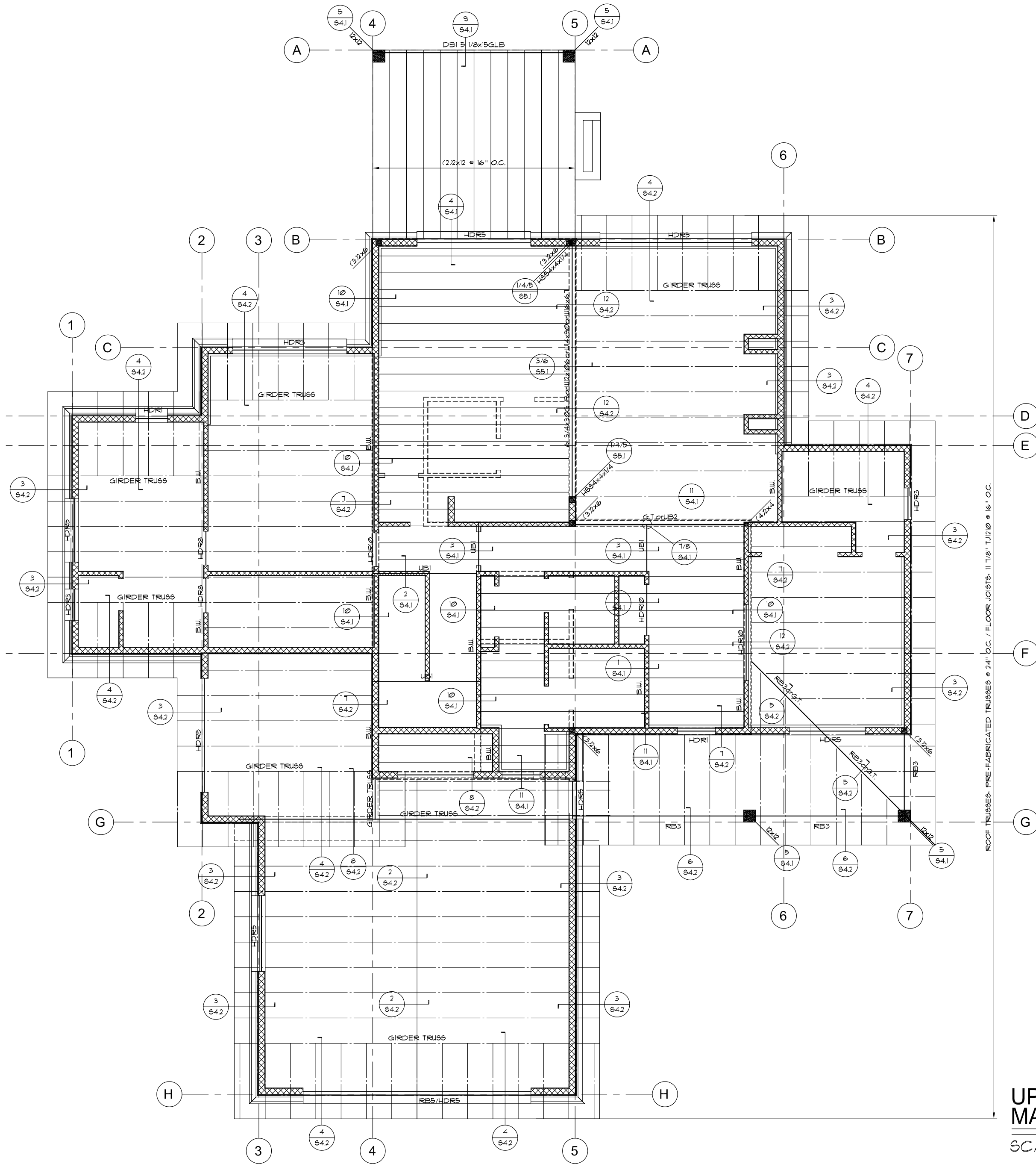

UPPER FLOOR FRAMING PLAN
MAIN ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"

HDR: HEADER, SEE SCHEDULE
HDN: HOLDOWN, SEE SCHEDULE
SW: WOOD SHEAR WALL, SEE SCHEDULE
BW:BEARING WALL
BWA: BEARING WALL ABOVE
NBW: NON-BEARING WALL
OBR: OVER-BUILD ROOF
GT: GIRDER TRUSS
KP: KING POST
DJ: DOUBLE JOISTS

ROOF TRUSS DESIGN CRITERIA

MARK	TOP CHPRD DEAD LOAD	BOTTOM CHD. DEAD LOAD	TOP CHPRD SNOW LOAD	TOTAL LOADS
REGULAR TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF
GIRDER TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF

NOTE: SNOW DRIFT SHALL BE INCLUDED ON DESIGN IF APPLIED
MIN. 1/2 OF ROOF SNOW LOAD SHALL BE APPLIED TO LOWER ROOF SNOW DRIFT.
SEE PLAN FOR POINT LOADS TO GIRDER TRUSSES IF APPLIED.

A TRUSS PACKAGE MUST BE SUBMITTED TO THE BUILDING OFFICIAL AS A DEFERRED SUBMITTAL. PRIOR TO SUBMITTING TO THE CITY, THE PACKAGE MUST BE REVIEWED BY THE ENGINEER OF RECORD AND STAMPED FOR GENERAL CONFORMANCE. NO TRUSSES ARE TO BE INSTALLED UNTIL APPROVED BY THE BUILDING OFFICIAL.

G.T. INDICATES GIRDER TRUSS TYP.

FOR THOSE TRUSSES RIGHT ABOVE THE SHEAR WALLS, A LATERAL LOAD OF 240 PLF ACTING ON TOP OF TRUSS WILL BE INCLUDED ON THE DESIGN OF TRUSSES TYP.

RB1: 5 1/8x12 GLB
RB2: (2)1 3/4x11 7/8 LVL
RB3: (3)1 3/4x11 7/8 LVL or 5 1/8x12 GLB

ROOF FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD WOOD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL TOP PLATE SPLICE DETAIL
   D. TYPICAL SHEAR WALL DETAIL
2. K.P. = KING POST, SEE PLAN FOR SIZE AND LOCATION TYPICAL.
3. ALL ROOF JOISTS OR TRUSSES ARE CALLED OUT ON PLAN. SEE PLAN FOR SIZE & SPACE TYP.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST/TRUSS BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST/TRUSS BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON ROOF DECK PLYWOOD OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE STANDARD DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL.
10. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

HEADER SCHEDULE

MARK	SIZE	END BRG.	REMARKS
HDR-1	(3)2x6	(2)2x6	
HDR2	(3)2x8	(2)2x6	or (3)1 3/4x5 1/2LVL
HDR-3	(3)2x10	(2)2x6	or (3)1 3/4x7 1/4LVL
HDR-4	(3)2x12	(3)2x6	or (3)1 3/4x9 1/2LVL
HDR-5	5 1/8x12 GLB	(3)2x6	or (3)1 3/4x11 7/8LVL
HDR-6	(2)2x6	(2)2x4	
HDR-7	(2)2x8	(3)2x4	or (2)1 3/4x5 1/2LVL
HDR-8	(2)2x10	(3)2x4	or (2)1 3/4x7 1/4LVL
HDR-9	(2)2x12	(3)2x4	or (2)1 3/4x9 1/2LVL
HDR-10	3 1/8x12 GLB	(4)2x4	or (2)1 3/4x11 7/8LVL

NOTES:
1. GLULAM BEAMS SHALL BE COMBINATION SYMBOL 24F-V4 FOR REGULAR BEAM AND 24F-V8 FOR CANTILEVERED BEAM TYPICAL.
2. ALL GLULAM BEAMS TO BE ZERO CAMBER BEAMS U.N.O.
3. ALL MULTI-MEMBER BEAMS & STUDS SHALL BE NAILED TOGETHER w/(2) ROWS 16d @ 6" O.C. BOTH SIDES TYPICAL.

NUMBER OF KING STUDS:
ONE KING STUD FOR OPNG. 2'-0" TO 5'-0"
TWO KING STUDS FOR OPNG. 5'-0" TO 10'-0"
THREE KING STUDS FOR OPNG. 10'-0" TO 15'-0"
FOUR KING STUDS FOR OPNG. 15'-0" TO 20'-0"

TYPICAL ROOF DECK:
5/8" PLWD/OSB SHEATHING, SPAN RATING 32/16
SEE GENERAL STRUCTURAL NOTES-TYPICAL NAILING:
10d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
10d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

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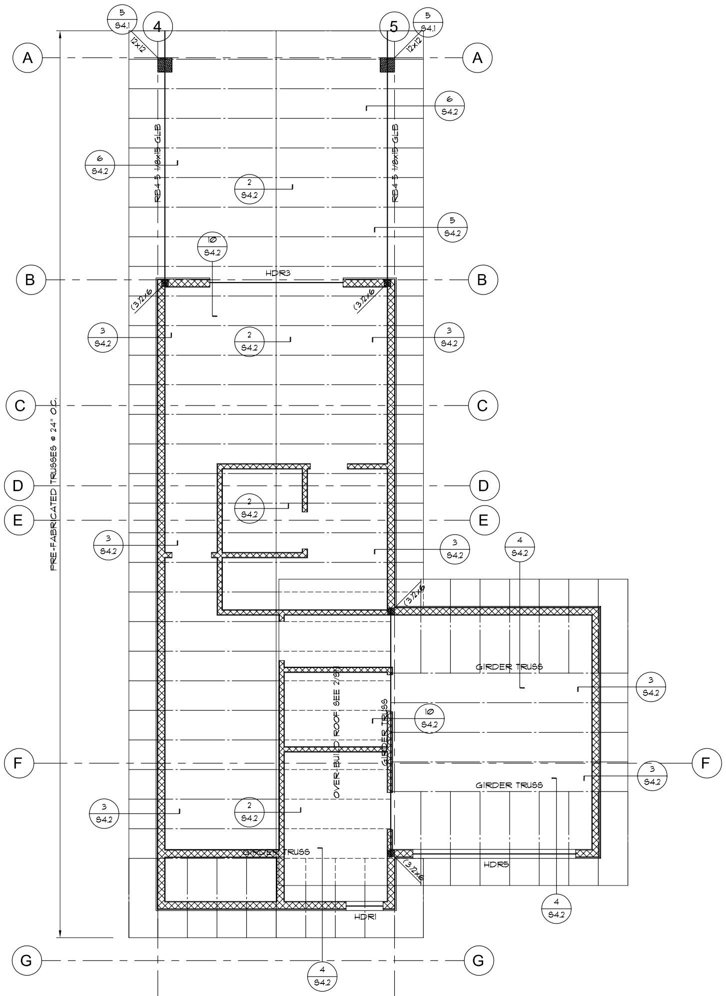
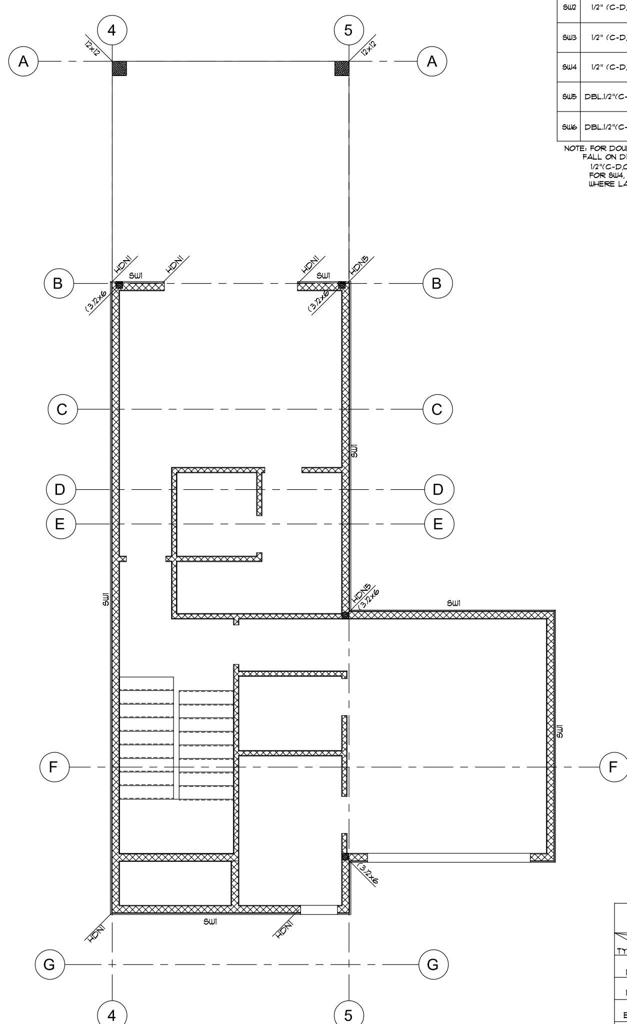


HIGH ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"



UPPER LEVEL HOLDOWN & SHEARWALL PLAN

SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. / 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. / 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. / 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. / 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	END STUD	ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B
(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"ϕ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"ϕ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"ϕ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"ϕ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"ϕ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(W) INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ MARK / HEIGHT	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

NOTES: 1. FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

NOTES: FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
10/5/2017

NO.	REVISION	DATE

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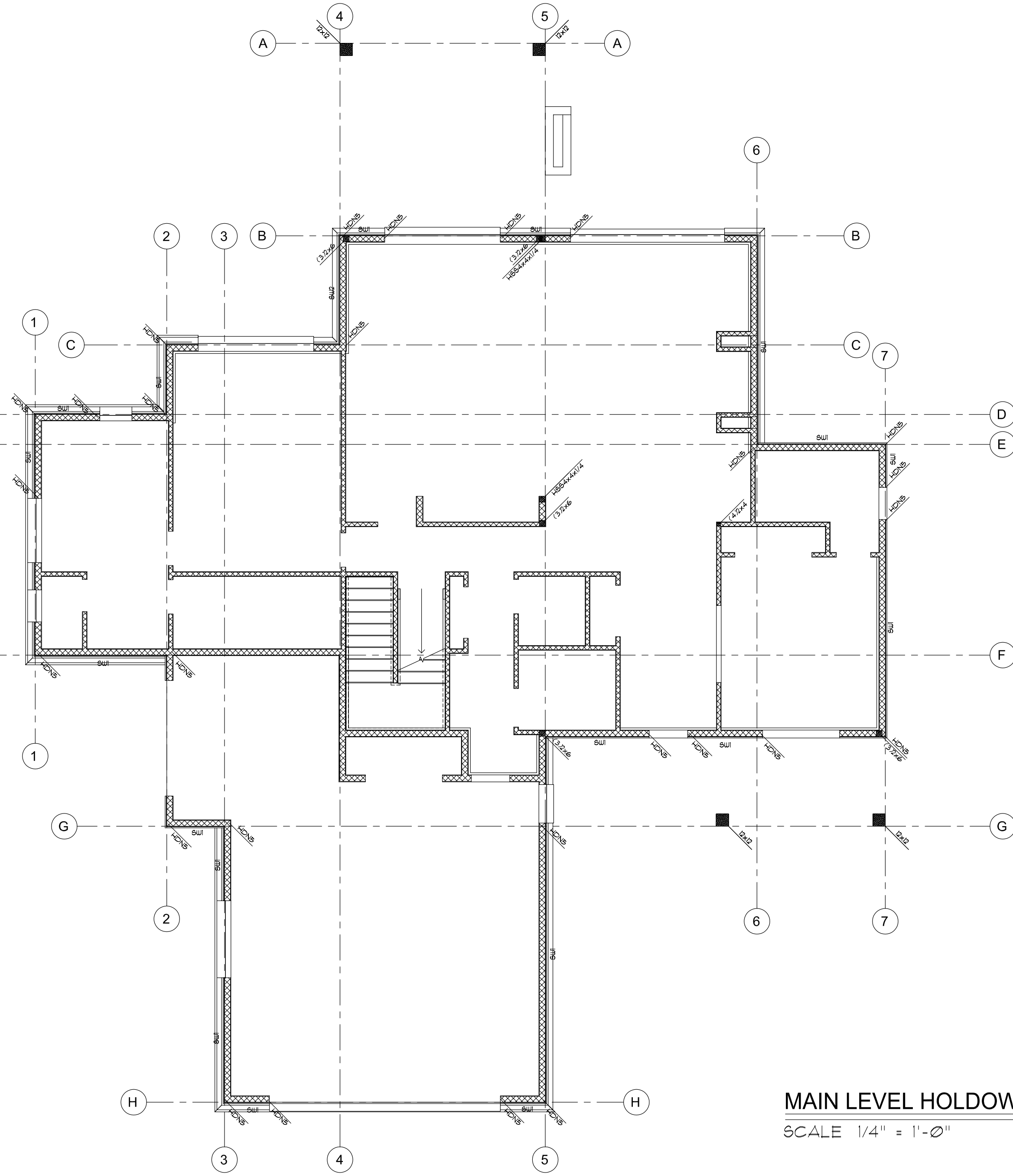
HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 10/5/2017
DRAWING NO. S2.3



MAIN LEVEL HOLDOWN & SHEARWALL PLAN

SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	HOLDOWN EACH END: END STUD	HOLDOWN EACH END: ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B

(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"ϕ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"ϕ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"ϕ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"ϕ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"ϕ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(W) INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ HEIGHT \ MARK	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

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DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

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NO.	REVISION	DATE

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HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

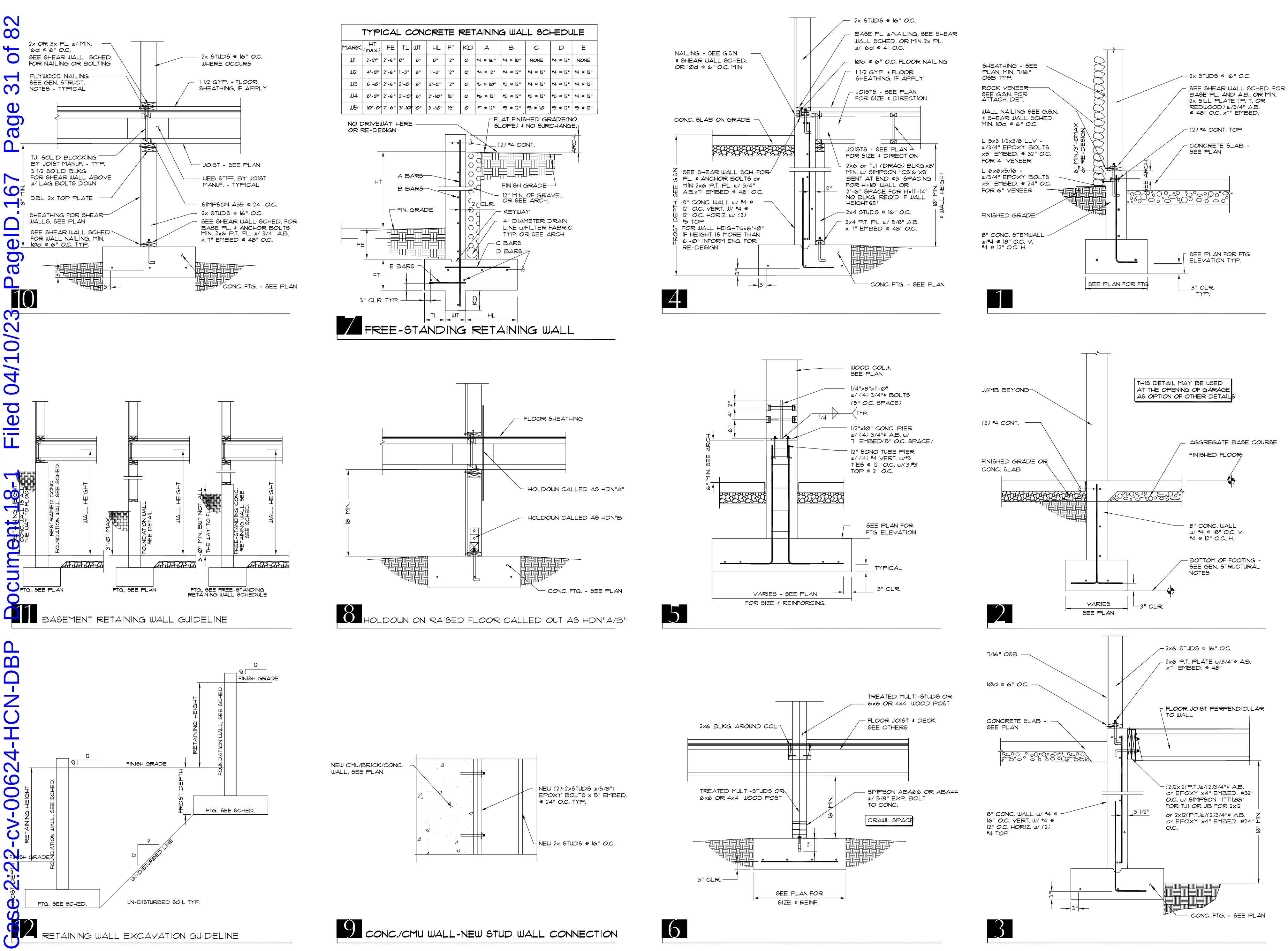
SCALE
AS NOTED
DRAWING TITLE
STRUCTURE

DATE: 10/5/2017
DRAWING NO.
S2.4

Drawing: OS31.DWG.DWG
Xrefs: S3112.DWG S3111.DWG S3110.DWG S3109.DWG S3108.DWG S3107.DWG S3106.DWG S3105.DWG S3104.DWG S3103.DWG S3102.DWG S3101.DWG TITLE.DWG

TYPICAL CONCRETE RETAINING WALL SCHEDULE

MARK	HT (max)	FE	TL	WT	HL	FT	KD	A	B	C	D	E
W1	2-0"	2'-6"	8"	8"	8"	12"	0	#4 @ 16"	#4 @ 18"	NONE	#4 @ 12"	NONE
W2	4'-0"	2'-6"	1'-3"	8"	1'-3"	12"	0	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W3	6'-0"	2'-6"	2'-0"	8"	2'-0"	12"	0	#5 @ 10"	#5 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W4	8'-0"	2'-6"	2'-10"	8"	2'-10"	15"	0	#6 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 12"
W5	10'-0"	2'-6"	3'-10"	10"	3'-10"	19"	0	#7 @ 12"	#5 @ 12"	#5 @ 10"	#5 @ 12"	#5 @ 12"



LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
10/5/2017

NO.	REVISION	DATE

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SE17375

SCALE
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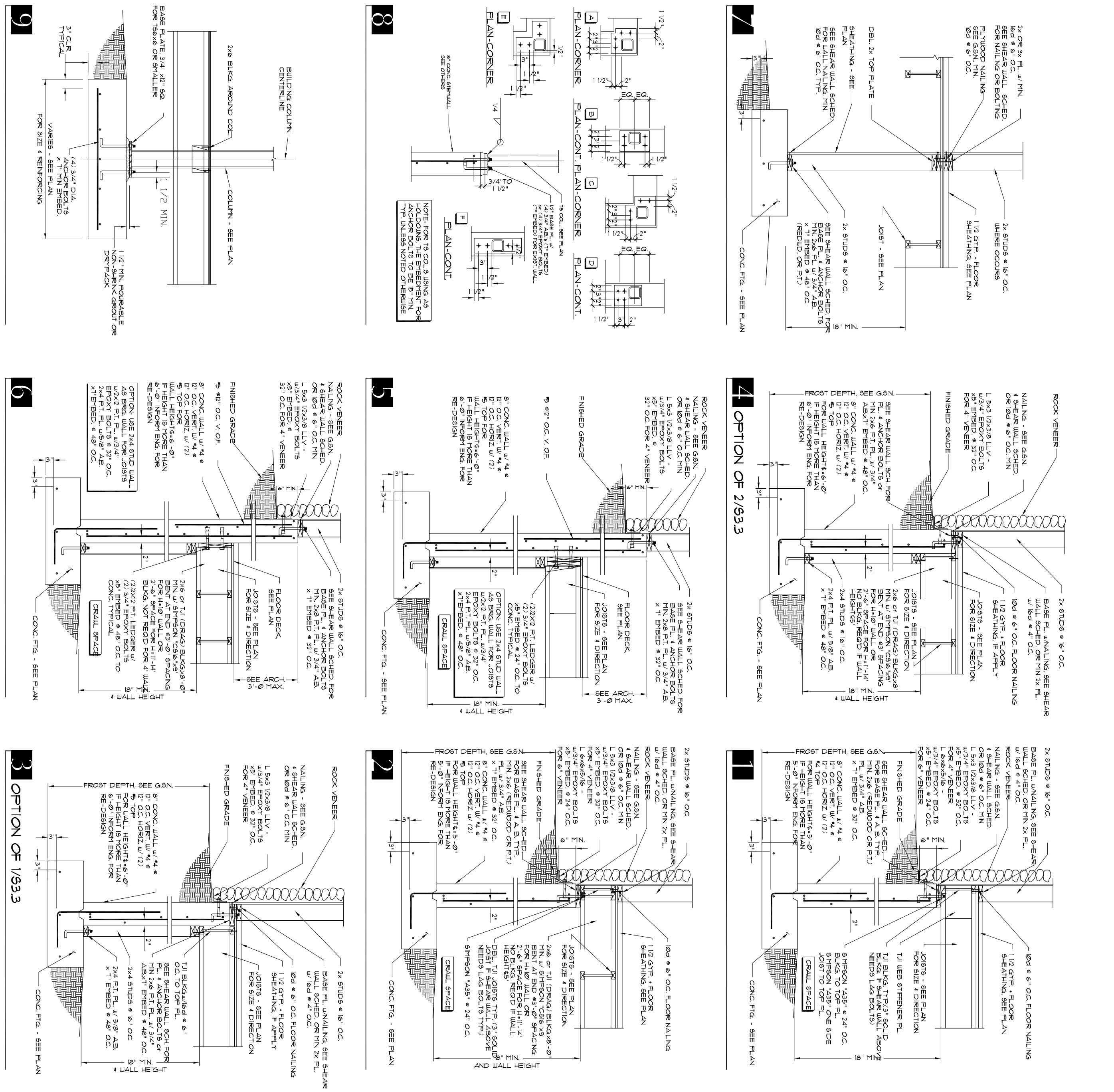
DRAWING TITLE
STRUCTURE

DATE:
10/5/2017
DRAWING NO.
S3.1

SHEN000008



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DATE:	10/5/2017
SCALE	AS NOTED
DRAWING TITLE	STRUCTURE

HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

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LICENSED STRUCTURAL ENGINEER
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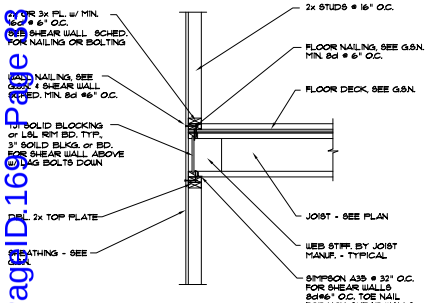
HUA SHEN
STATE OF UTAH



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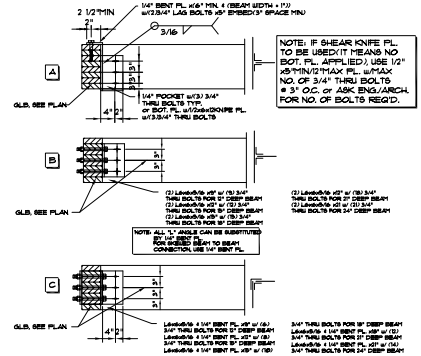

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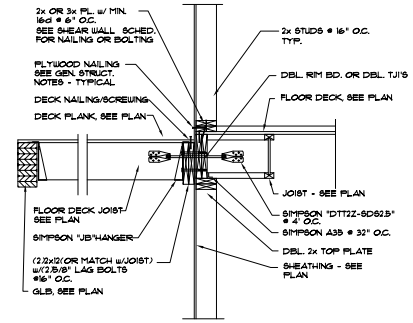

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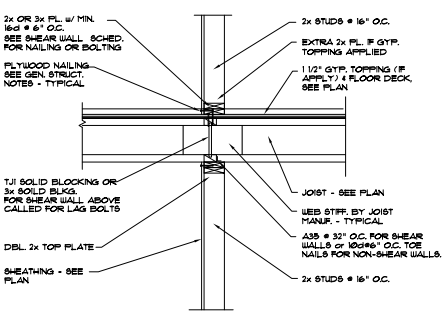

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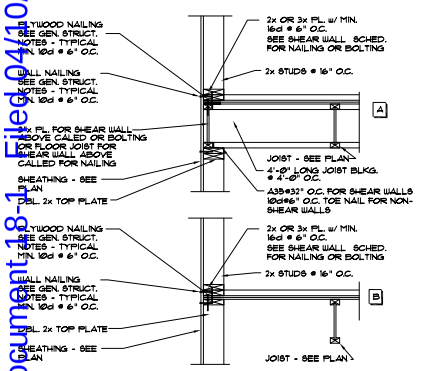

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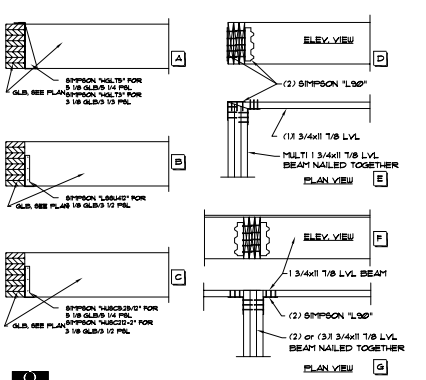

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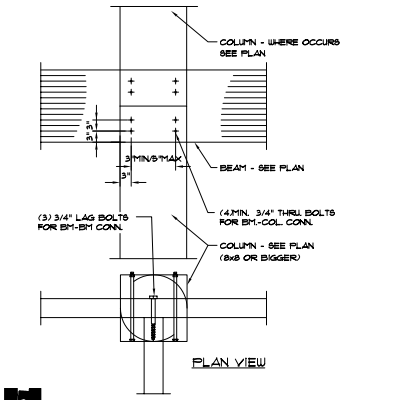
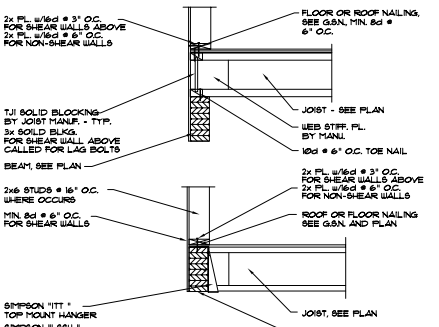


5 TYPICAL CONN. FOR BM. TO BIG COL.



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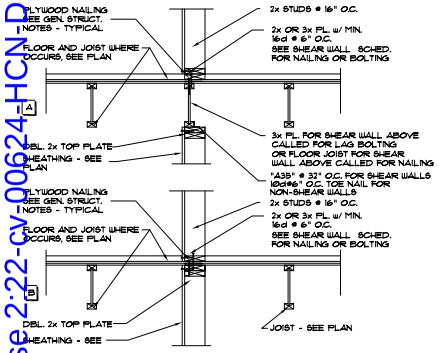

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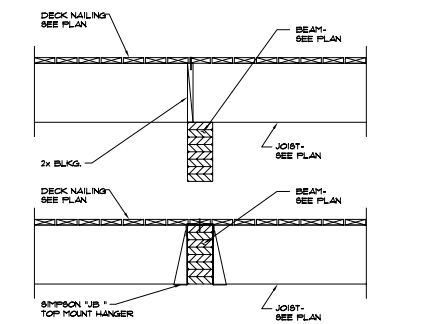

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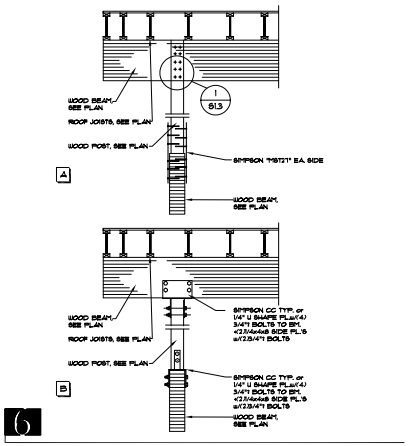

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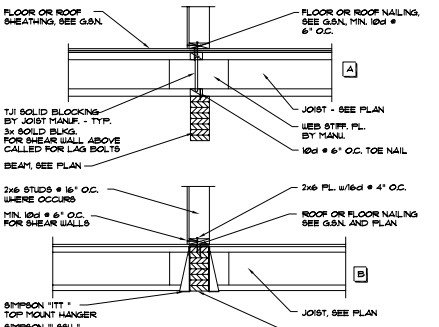

3

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
10/5/2021

NO.	REVISION	DATE

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HIGHSTAR CABIN 2800

KAMAS CITY, UTAH

9EI7315

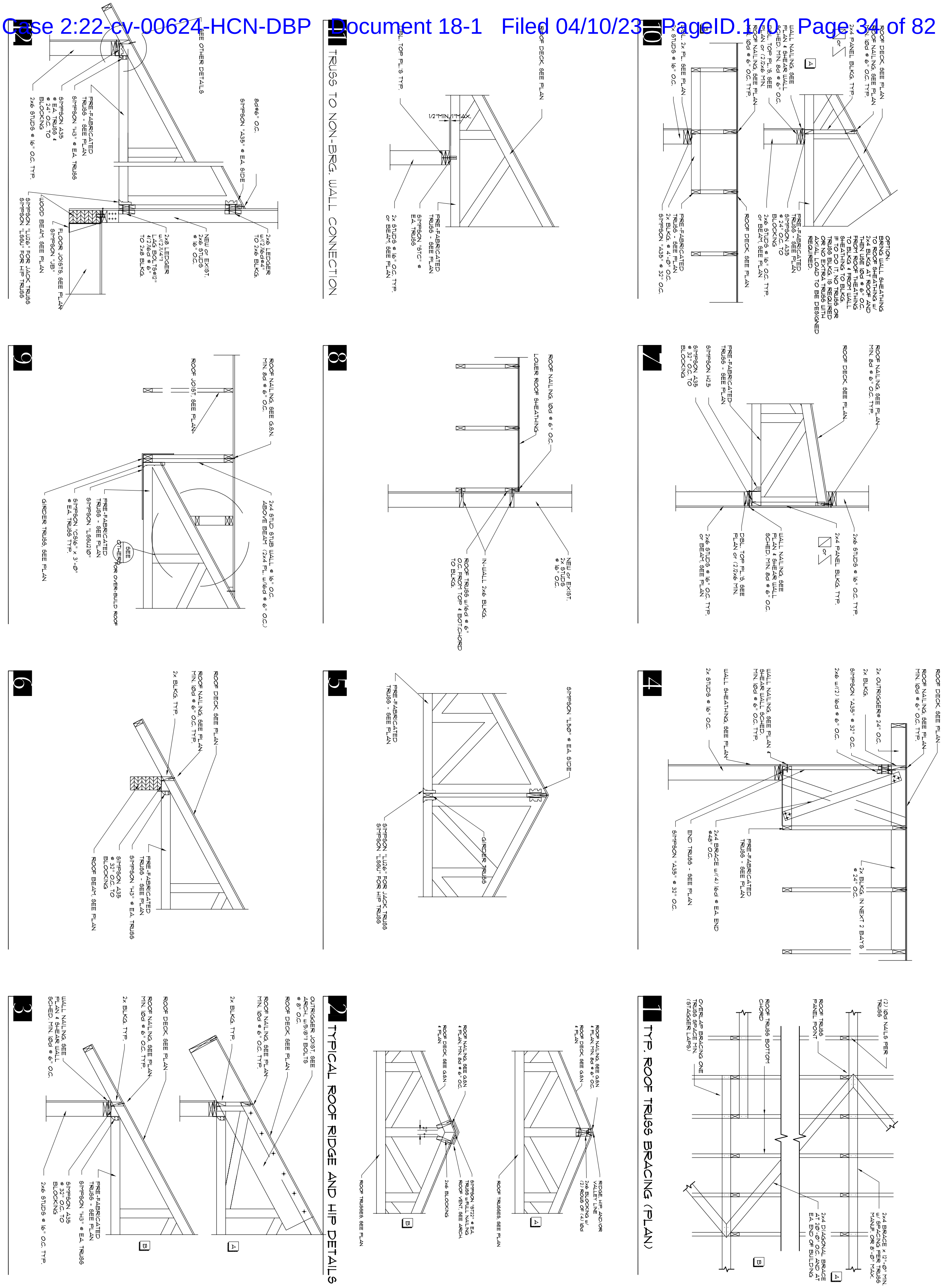
SCALE: AS NOTED

DRAWING TITLE: STRUCTURE

DATE: 10/5/2021

DRAWING NO.: **S4.1**

Xrefs: S4112.DWG S4111.DWG S4110.DWG S4109.DWG S4108.DWG S4107.DWG S4106.DWG S4105.DWG S4104.DWG S4103.DWG S4102.DWG S4101.DWG TITLE.DWG



DATE: 10/5/2017	DRAWING NO. S4.2

SCALE
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DRAWING TITLE
STRUCTURE

HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

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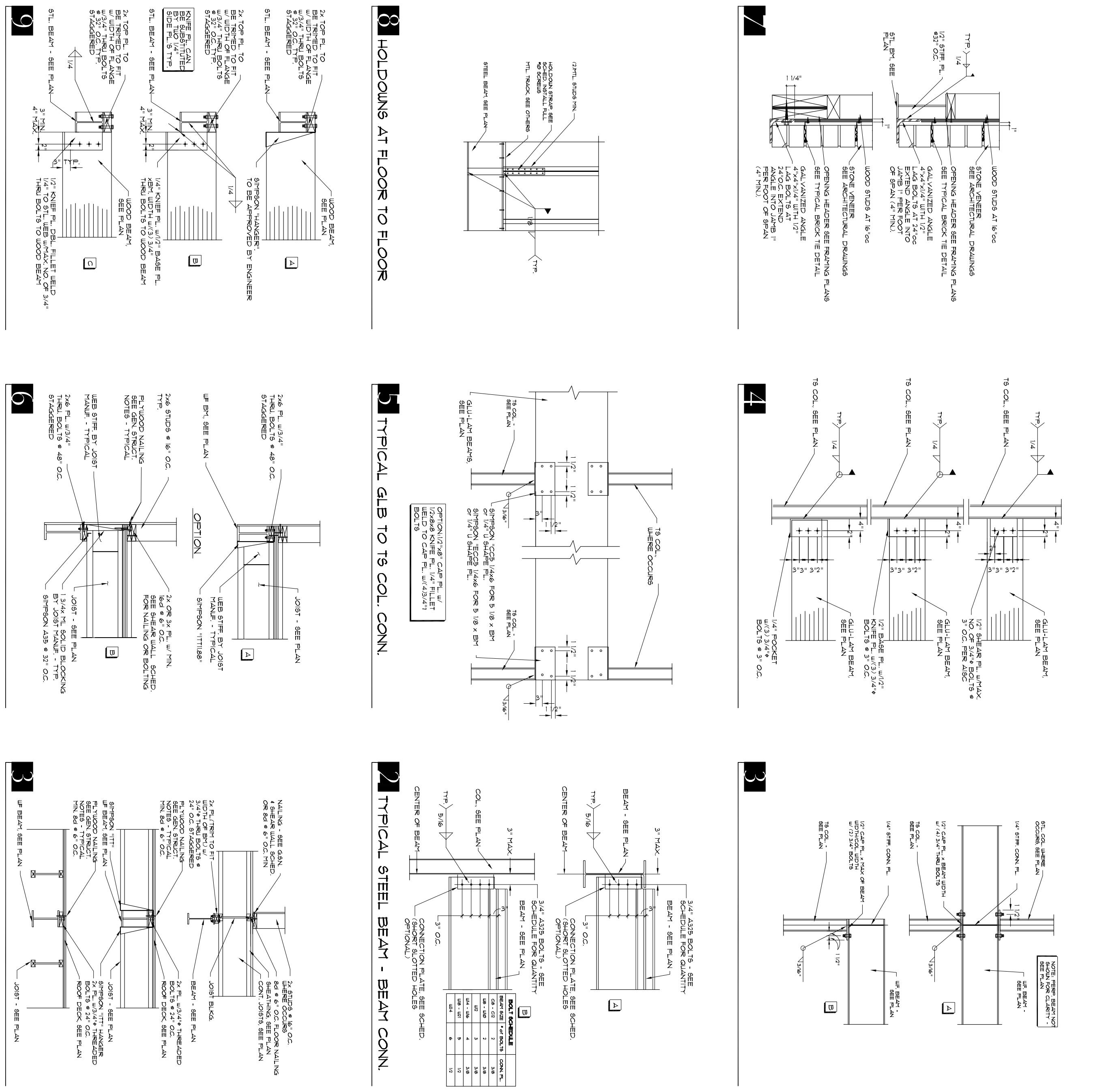

HIGHSTAR CABIN 2800
KAMAS CITY, UTAH
SE17375

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE
DRAWING NO. S5.1
DATE 10/5/2017

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NO.	REVISION	DATE

EXHIBIT C

Drawing: 0S11.DWG.DWG
Xrefs: TITLE.DWG

GENERAL STRUCTURAL NOTES:

I. GENERAL:

A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS SHALL BE TYPICAL AND APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE.
B. CONTRACTOR SHALL COMPARE ALL DIMENSIONS AND CONDITIONS ON CONTRACT DOCUMENTS AND AT THE SITE. ANY OMISSION OR CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IN CASE OF ANY CONFLICT FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY ARCHITECT/ENGINEER.
C. SEE THE ARCHITECTURAL DRAWINGS FOR DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, RECESSES, DEPRESSIONS, ETC.
D. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL PORTIONS OF THE BUILDING UNTIL THE ENTIRE STRUCTURE OF THE BUILDING IS COMPLETE.
E. OBSERVATION VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVES SHALL NOT BE CONSTRUED AS INSPECTION OR APPROVAL OF CONSTRUCTION.
F. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN UTAH.

II. DESIGN CRITERIA:

A. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) W/ AMENDMENTS
B. LOADINGS:
1. ROOF SNOW LOAD = 90 PSF + SNOW DRIFT PER IBC
2. TYPICAL FLOOR LIVE LOAD = 40 PSF
3. WIND LOAD - 115 MPH ZONE - EXPOSURE C
4. SEISMIC DESIGN DATA: SDC-D2, Ss=0.98,S1=0.300,I=1,R=6.5, Fa=1.2, WOOD SHEAR WALL SYSTEM, V=0.102, IRREGULARITY=1.0, SITE CLASS: D, EQUIVALENT LATERAL FORCE PROCEDURE

C. FOUNDATION:
1. ALL EXTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 36" BELOW LOWEST ADJACENT FINISH FLOOR OR FINISH GRADE ONTO UNDISTURBED EXISTING SUBSOILS HAVING A MINIMUM NET BEARING CAPACITY OF 1500 PSF. ALL INTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 1'-3" BELOW LOWEST ADJACENT FINISH FLOOR ONTO SUBSOILS.

III. CONCRETE:

A. ALL MATERIALS SHALL COMPLY WITH ACI 318 AND ACI 347 PUBLICATIONS AND APPLICABLE ASTM PUBLICATIONS.
B. CONCRETE MATERIAL PROPERTIES: 28-DAY COMPRESSIVE STRENGTHS ARE TO BE 3000 PSI TYPICAL UNLESS NOTED OTHERWISE. DESIGN BASED ON 2500 PSI.
C. CAST IN PLACE CONCRETE:
1. SPACING OF CONSTRUCTION JOINTS OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 40 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
2. PROVIDE EXTRA REINFORCING AROUND ALL OPENINGS EXCEEDING 24 INCHES SQUARE OR ROUND IN ALL SLABS AND WALLS EQUAL TO TWO #5 BARS ON FOUR SIDES AND EXTEND TWO FEET BEYOND THE OPENING.
3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
4. PROVIDE CLASS B LAP SPLICES FOR ALL REINFORCING UNLESS NOTED OTHERWISE.
5. PROVIDE ISOLATION JOINTS AROUND ALL COLUMNS AT ALL EXPOSED SLAB ON GRADE AREAS.

IV. REINFORCING STEEL:

A. ALL BARS #4 AND LARGER TO BE ASTM A 615, GRADE 60. ALL #2 AND #3 BARS TO BE ASTM A 615, GRADE 40. DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI-318, LATEST ADOPTION.
B. ALL REINFORCING STEEL SHALL BE BENT, DETAILED AND CHAIRED AS PER "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES".
C. WELDED WIRE FABRIC TO BE IN ACCORDANCE WITH ASTM A 185.
D. ALL BARS INDICATED ON THE PLANS TO BE WELDED SHALL CONFORM TO ASTM A706 (GRADE 60).
E. CONCRETE COVER REQUIREMENTS FOR DEFORMED BAR REINFORCING STEEL SHALL COMPLY WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE".
1. CAST-IN-PLACE CONCRETE:
a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
b) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER: 2"
#5 BARS AND SMALLER: 1-1/2"
c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS JOISTS: #11 BARS OR SMALLER: 3/4"
BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1-1/2"
F. DETAILING: SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE ONLY AFTER REVIEW AND APPROVAL. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
1. LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
30 BAR DIAMETER FOR #3 AND #4 BARS
40 BAR DIAMETER FOR #5 THROUGH #8 BARS
DO NOT SPLICE STIRRUPS AND TIES
DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN.
2. ALL EMBEDMENTS AND DOWELS SHALL BE SECURELY TIED TO FORMWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

V. STRUCTURAL AND MISCELLANEOUS STEEL:
A. MATERIAL PROPERTIES:
1. ALL SHAPES, PLATES, ANGLES, AND CHANNELS TO BE ASTM A-36 UNLESS NOTED OTHERWISE.
2. ALL WF SHAPES WEIGHING 84 POUNDS PER LINEAR FOOT OR LESS TO BE ASTM A 572, GRADE 50. ALL WF SHAPES WEIGHING MORE THAN 84 POUNDS PER LINEAR FOOT TO BE ASTM A 572, GRADE 36.
3. SQUARE OR RECTANGULAR TUBES TO BE ASTM A 500, GRADE B, F_y = 46 KSI.
4. ALL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS, LATEST ADOPTION.
B. WELDING:
1. FOR STRUCTURAL STEEL TO BE IN ACCORDANCE WITH A.W.S. REQUIREMENTS FOR E70XX ELECTRODES.
C. BOLTS:
1. ALL BOLTS TO BE 3/4" DIAMETER ASTM A 325-N UNLESS NOTED OTHERWISE.
2. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.
3. ANCHOR BOLTS SHALL BE ASTM A 307 OR A 36.

VI. WOOD:
A. DIMENSIONAL LUMBER: ALL TO BE GRADE STAMPED PER W.C.L.B. RULES.
1. ALL JOISTS, BEAMS, PLATES, HEADERS AND OTHER LUMBER TO BE D.FIR/LARCH #2 UNLESS OTHERWISE NOTED.
2. 2 X 4 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
3. 2X 6 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
4. PURLINS TO BE D.FIR DENSE #1.
5. 4X AND 6X POSTS TO BE D.FIR/LARCH NO.1.
6. WALL STUDS TO BE D.FIR/LARCH #2 GRADE OR BETTER.

B. WOOD DECKING: FLOOR DECKING SHALL BE COMMERCIAL 2 X 6 (NOMINAL TONGUE AND GROOVE DECKING, HEM-FIR OR BETTER WITH A REPETITIVE Fb OF 1450 PSI MINIMUM.

C. GLU-LAMS:
1. TO BE GRADE STAMPED PER A.I.T.C., D.FIR/LARCH COMBINATION 24F-V8 FOR CONTINUOUS SPANS AND D.FIR/LARCH COMBINATION 24F-V4 FOR SIMPLE SPANS. GLUED WITH WATERPROOF GLUE.

D. PLYWOOD:
1. ROOF SHEATHING TO BE STD 5/8" OSB OR C-D WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
2. FLOOR SHEATHING TO BE STD 3/4" OSB OR C-C T&G WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 8d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 8d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
3. EXTERIOR WALLS TO BE STD 7/16" OSB OR 1/2" C-C WITH EXTERIOR GLUE. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING AND NAILING.

E. PLYWOOD WEB I JOISTS:
1. TO BE DESIGNED, DETAILED AND FABRICATED BY TRUS-JOIST AND HAVE THE APPROVAL OF ICBO.
2. JOISTS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
3. DESIGN JOISTS FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.

F. SPECIAL TREATMENTS (AMERICAN WOOD PRESERVERS INSTITUTE STANDARDS):
1. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL: PRESSURE TREAT WITH WOLMAN CCA PRESERVATIVE OR EQUAL AS APPROVED BY THE ARCHITECT.
2. FIRE RETARDANT: PRESSURE TREAT WITH DRICON OR EQUAL AS APPROVED THE ARCHITECT.

G. WOOD NAILING SCHEDULE:
1. JOIST TO SILL OR GIRDER, TOENAIL 3-8d
2. BRIDGING TO JOIST, TOENAIL EACH END 2-8d
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST FACE NAIL 2-8d
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST, FACE NAIL 3-8d
5. SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL 2-16d
6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL 2-16d
7. TOP PLATE TO STUD, END NAIL 2-16d
8. STUD TO SOLE PLATE TOENAIL 4-8d OR FACE NAIL 2-16d
9. DOUBLE STUDS, FACE NAIL 16d @ 24" o.c.
10. DOUBLED TOP PLATES, FACE NAIL 16d @ 16" O.C.
11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2-16d
12. CONTINUOUS HEADER, 2 PIECES 16d @ 16"O.C. ALONG 2 EDGES
13. CEILING JOISTS TO PLATE, TOENAIL 3-8d
14. CONTINUOUS HEADER TO STUD, TOENAIL 4-8d
15. CEILING JOIST, LAPS OVER PARTITIONS FACE NAIL 3-16d
16. CEILING JOIST TO PARALLEL RAFTERS FACE NAIL 3-16d
17. RAFTER TO PLATE, TOENAIL 4-8d
18. BRACE TO EACH STUD AND PLATE, FACE NAIL 2-8d
19. 1"X8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL 2-8d
20. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL 3-8d
21. BUILT UP CORNER STUDS 16d @ 24" O.C.
22. BUILT-UP GIRDERS AND BEAMS 20d @ 32"O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT EACH END & SPLICE
23. PLANKS 2-16d AT EACH BEARING

VII. MISCELLANEOUS:
A. GYPSUM WALLBOARD: FOR SHEAR WALLS TO BE STANDARD 1/2" GYPSUM WALLBOARD. NAIL WITH 5D COOLER NAILS AT 7" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
B. STUCCO: FOR SHEAR WALLS TO BE STANDARD 7/8" PORTLAND CEMENT PLASTER ON EXPANDED METAL OR WOVEN WIRE LATH. NAIL WITH NO.11 GAGE, 1 1/2" LONG, 7/16" HEAD NAILS OR NO.16 GAGE STAPLES WITH 7/8" LONG LEGS AT 6" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.

VIII. SPECIAL INSPECTION: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.
A. EPOXY BOLTS IN TENSION IF APPLY.

IX. BRICK AND/OR STONE VENEER NOTES:
1. TO WOOD STUD WALLS: VENEER SHALL BE ATTACHED TO THE WOOD STUDS WITH A 1" MINIMUM WIDE X 22 GAUGE, GALVANIZED, CORRUGATED BRICK TIE SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER. CORRUGATED METAL TIES SHALL FORM A 180-DEGREE HOOK AROUND THE NO. 9 GAUGE WIRE USED AS HORIZONTAL JOINT REINFORCEMENT IN THE VENEER. SPOT BEDDING AT THE CORRUGATED TIES SHALL BE OF CEMENT MORTAR ENTIRELY SURROUNDING THE TIES. ATTACH TIES TO STUDS WITH A MINIMUM #10 X 1 1/2" WOOD SCREW.
2. TO CONCRETE WALLS: 22 GAUGE GALVANIZED DOVETAIL SLOTS SHALL BE INSTALLED VERTICALLY IN CONCRETE AT 16" O.C. VENEER SHALL BE ATTACHED TO THE CONCRETE WITH 1" X 22 GAUGE, CORRUGATED, GALVANIZED DOVETAIL BRICK ANCHORS OR 3/16" DIAMETER GALVANIZED DOVETAIL TRIANGLE WIRES SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER.
3. OTHER METHODS OF ATTACHMENT MAY BE USED AFTER WRITTEN ACCEPTANCE BY THE ARCHITECT AND STRUCTURAL ENGINEER.

X. PREFABRICATED WOOD TRUSSES:

1. TO BE "GANG-NAIL" OR "ALPINE" OR APPROVED EQUAL DESIGNED, DETAILED AND FABRICATED IN ACCORDANCE WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING" AND THE TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION.

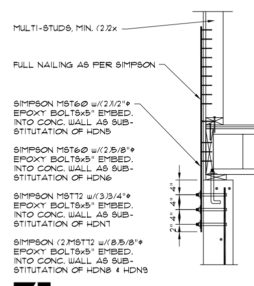
2. LOADING:
a) TRUSS TOP CHORDS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
b) TRUSS BOTTOM CHORDS ARE TO BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 5 PSF.
c) DESIGN TRUSSES FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
d) FOR TRUSSES MANUFACTURED SUCH THAT ALL CHORDS ARE MSR LUMBER AND ALL CHORD SPLICES ARE FINGER JOINTS AND PROOF LOADED IN ACCORDANCE WITH U.B.C STANDARDS, THE ALLOWABLE STRESS INCREASE FOR DURATION OF LOAD MAY BE THE MAXIMUM PERMITTED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING", LATEST ADOPTION.

3. SUBMITTALS:
a) COMPLETE DESIGN CALCULATIONS SHALL BE FURNISHED TO THE ENGINEER FOR EACH TRUSS. CALCULATIONS MUST BE PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF UTAH.
b) SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
c) THE TRUSS MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE TRUSS QUALITY IS IN CONFORMANCE TO "QUALITY STANDARD FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION, PUBLISHED BY THE TRUSS PLATE INSTITUTE.
d) THE TRUSS MANUFACTURER SHALL HAVE A QUALITY ASSURANCE PROGRAM IN ACCORDANCE WITH SECTION 25-1739 OF UBC STANDARD NO. 25-17 AND PROVIDE WRITTEN CERTIFICATION OF COMPLIANCE FROM THE INDEPENDENT TESTING AGENCY.

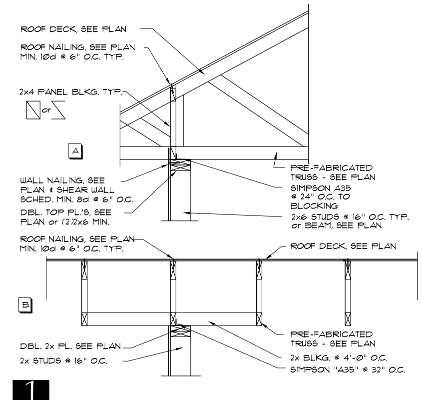
4. GENERAL:
a) ALL TRUSSES AND RELATED BRACING SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS.
b) LUMBER USED FOR CHORDS AND WEBS SHALL HAVE A MAXIMUM MOISTURE CONTENT BELOW 19% AT THE TIME OF FABRICATION.
c) ALL TRUSS MEMBERS SHALL MEET OR EXCEED VISUAL REQUIREMENTS FOR NO. 2 GRADE. NO WANE SHALL BE PERMITTED IN THE CONNECTION AREA.
d) DESIGN LATERAL RESISTANCE VALUES FOR TRUSS PLATES AND METAL WEBS SHALL BE 80% OF ICBO ALLOWABLE LOAD VALUES.
e) THE HANKINSON FORMULA OR STRAIGHT LINE INTERPOLATION SHALL BE USED TO DETERMINE LATERAL RESISTANCE VALUES FOR PLATE TO WOOD GRAIN ANGLES BETWEEN 0 AND 90 DEGREES.
f) AT CHORD SPLICE LOCATIONS, MAXIMUM TENSION FORCES SHALL BE AS FOLLOWS:

PLATE GAGE	2X4	2X6
20	3500 #	5000 #
18	4800 #	7000 #
16	6000 #	9000 #

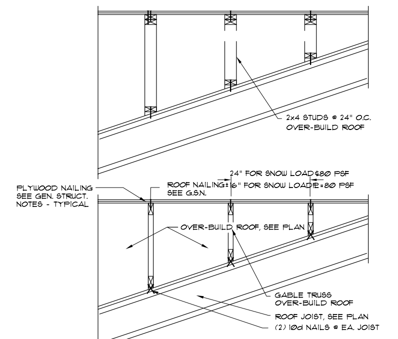
g) THE AXIAL FORCE FOR A 2X4 WEB SHALL NOT EXCEED 3500 LBS.
h) TRUSS PLATES SHALL BE SIZED SO THAT THEY CAN BE CENTERED BOTH HORIZONTALLY AND VERTICALLY ON THE JOINT UNLESS THE CHORD DEPTH OR THE TRUSS GEOMETRY PROHIBITS SUCH PLACEMENT.
i) EVERY TRUSS PLATE SHALL BE FULLY EMBEDDED INTO THE UNDERLYING WOOD ACROSS THE ENTIRE CONTACT AREA.
j) ALL TRUSSES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "HANDLING AND ERECTING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE. TEMPORARY BRACING SHALL BE INSTALLED DURING ERECTION AS REQUIRED BY THE LATEST EDITION OF "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE.



4 HOLDOWN INSTALLATION WITH EPOXY BOLTS



1



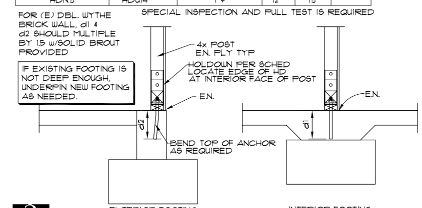
2 SUGGESTED OVER-BUILD ROOF DETAIL

HOLDOWN ALTERNATES w/ SIMPSON "SET-XP" - ESR2508					
HOLDOWNS CALLED OUT ON PLAN	SIMPSON HOLDOWNS	NEW ANCHORS SIMPSON "SET-XP"	d1*	d2*	d2 @ CORNER
HDN5	HDU2	5/8"φ	6"	6"	10"
HDN6	HDU5	5/8"φ	6"	8"	14"
HDN7	HDU8	7/8"φ	8"	13 1/2"	
HDN8	HDU11	1"φ	8"	16"	
HDN9	HDU14	1"φ	12"	19"	

SPECIAL INSPECTION AND PULL TEST IS REQUIRED

FOR (E) DBL. WYTHE BRICK WALL, d1 & d2 SHOULD MULTIPLE BY 1.5 w/SOLID BROUT PROVIDED

IF EXISTING FOOTING IS NOT DEEP ENOUGH, UNDERPIN NEW FOOTING AS NEEDED.



3 HOLDOWN INSTALLATION WITH EPOXY BOLTS

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
8/28/2017

NO.	REVISION	DATE

Shen Engineers, Inc.
Structural/Seismic Consultants
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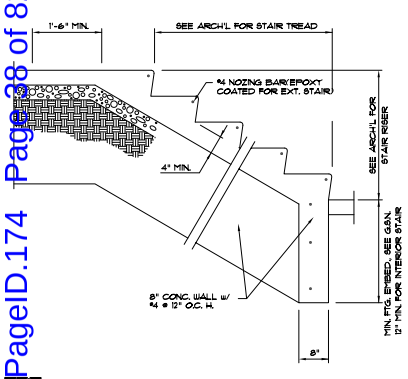
SUITE 208
HOLLADAY, UTAH 84117
801.277.2625
E-mail: shenengr@msn.com

HIGHSTAR CABIN 2050
KAMAS CITY, UTAH
SE17317

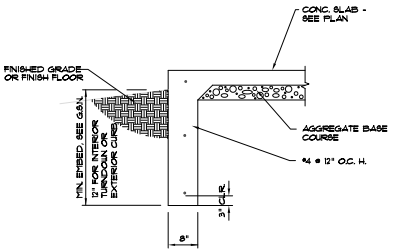
SCALE
AS NOTED
DRAWING TITLE
STRUCTURE

DATE:
8/27/2017

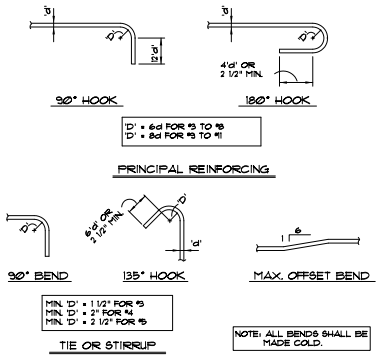
DRAWING NO.
S1.1



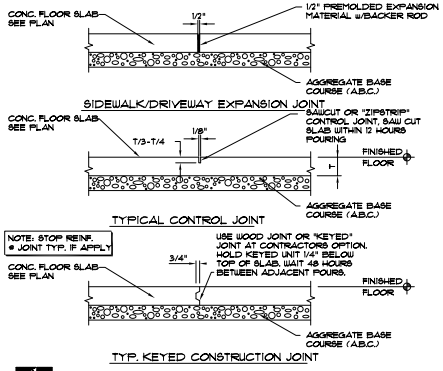
10 CONCRETE STAIR ON GRADE



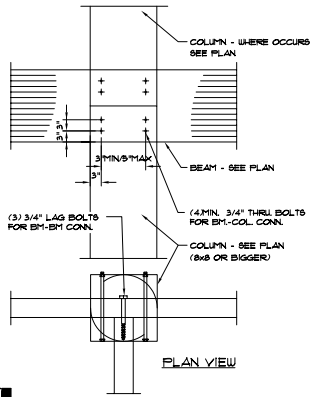
7 TYPICAL TURNDOWN FOOTING



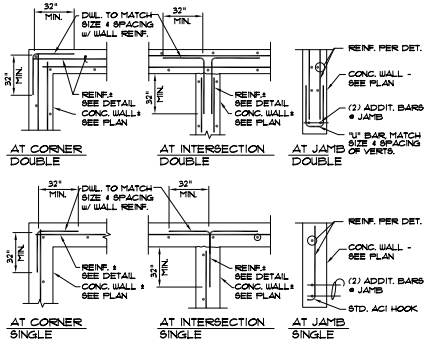
4 TYPICAL REINFORCING BAR BENDS



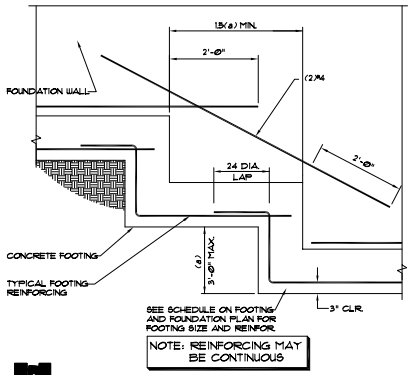
1 TYPICAL CONCRETE FLOOR JOINTS



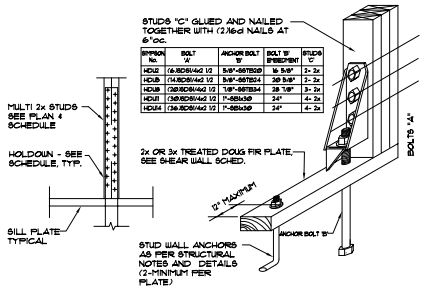
11 TYPICAL CONN. FOR BM. TO BIG COL.



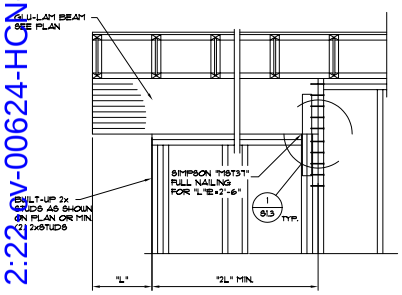
8 TYPICAL CONC. WALL REINF.



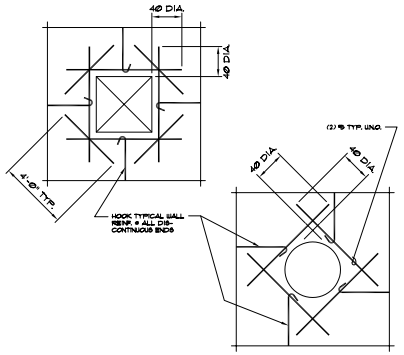
5 TYPICAL STEPPED FOOTING



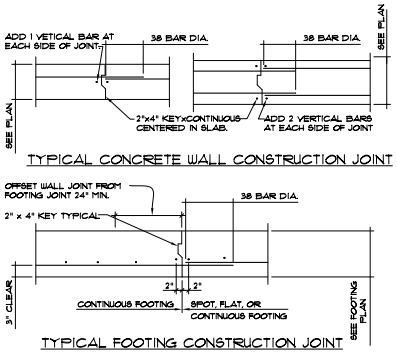
2 TYPICAL HOLDOWN TO CONC.



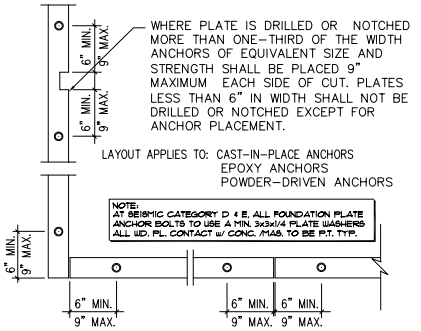
12 TYP. IN-WALL CANTILEVERED EAVE BEAM



9 TYP. REINF. @ CONC. WALL OPNG.



6 TYP. FTG. & WALL CONSTRUCTION JOINT



3 TYPICAL ANCHOR BOLTS LAYOUT

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
8/26/2021

NO.	REVISION	DATE

Shen Engineers, Inc.
Structural/Seismic Consultants
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E-mail: shengineers@msn.com

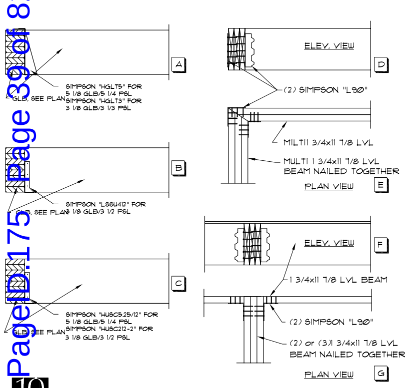
HIGHSTAR CABIN 2050
KAMAS CITY, UTAH
9E1731

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 8/27/2021
DRAWING NO.: S1.2

SHEN000014

Xrefs: S1312.DWG S1311.DWG S1310.DWG S1309.DWG S1308.DWG S1307.DWG S1306.DWG S1305.DWG S1304.DWG S1303.DWG S1302.DWG S1301.DWG TITLE.DWG



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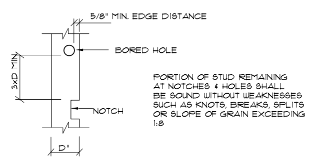
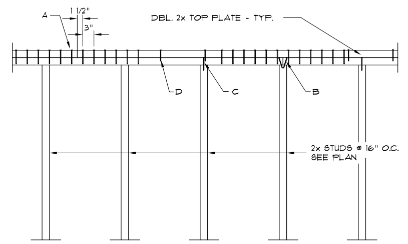


WOOD STUD SIZE	BEARING		NON-BEARING	
	MAX. HOLE (40%)	MAX. HOLE (25%)	MAX. HOLE (60%)	MAX. HOLE (40%)
2x4	1 3/8"	7/8"	2 1/8"	1 3/8"
2x6	2 3/16"	1 3/8"	3 5/16"	2 3/16"

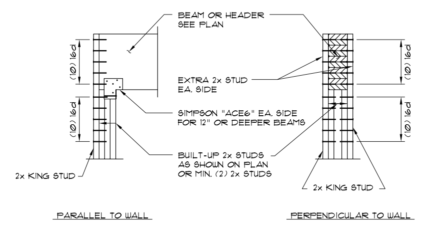
7



MARK	NAILING SCHEDULE DESCRIPTION
A	(24) 16d NAILS AT 3"O.C.
B	2 - 16d NAILS AT THE END OF EACH PLATE (TOP OR BOTTOM) 4 - TOTAL.
C	2 - 16d NAIL AT EACH STUD.
D	NAIL TOP AND BOTTOM PLATES TOGETHER WITH 2 - 16d NAILS AT 16"O.C. TYPICAL.

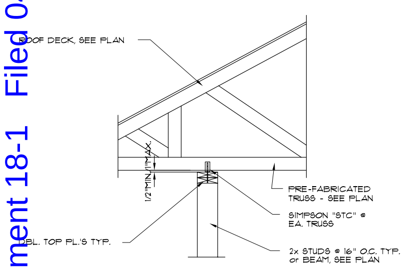
THE TOP PL'S. HAVE TO BE INSTALLED CONTINOUSLY. IF THEY ARE DIS-CONTINUED BY STEEL COLUMNS, PIPES ETC., INSTALL CS16x24"MIN./12" FROM EA. SIDE) TO TOP PLATE TYP. U.N.O.

4 TYPICAL TOP PLATE SPLICE

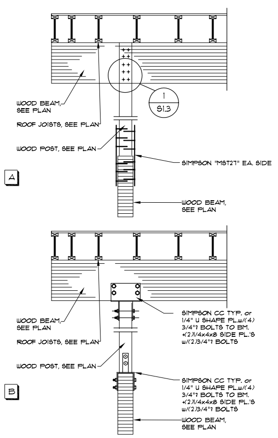


NOTE: FOR BEAMS DEEPER THAN 16", ONE SIMPSON "MST60" SHALL BE USED TO CONNECT BEAM TO THE MULTI-STUDS TYP. U.N.O.

1 TYPICAL WOOD HEADER OR BEAM TO MULTI-STUDS CONNECTION



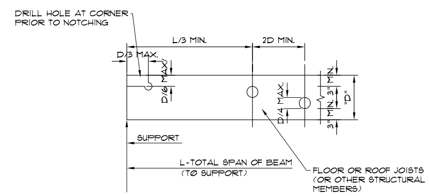
11 TRUSS TO NON-BRG. WALL CONNECTION



8

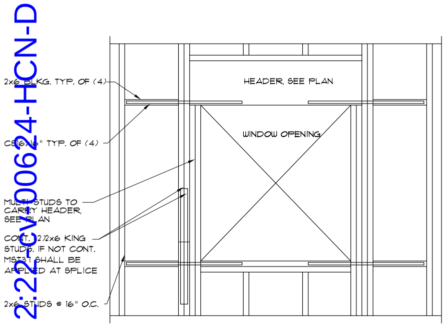
NAIL/STAPLE EQUIVALENT TABLE.				
FLOORS AND ROOF				
NAILS		STAPLES		
SIZE	SPACING	SIZE	SPACING	LENGTH
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	2 1/2"	14 GA	2 1/2"	1 1/2"
8d	2"	14 GA	2"	1 1/2"
10d	6"	14 GA	4"	1 5/8"*
10d	4"	14 GA	2 1/2"	1 5/8"*
10d	2 1/2"	14 GA	2"	1 5/8"*
* IN 3/4" PLYWOOD USE 2" STAPLES				
WALL				
3/8" PLYWOOD				
8d	6"	14 GA	6"	1 3/8"
8d	4"	14 GA	4"	1 3/8"
8d	3"	14 GA	3"	1 3/8"
8d	2"	14 GA	2"	1 3/8"
1/2" PLYWOOD				
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	3"	1 1/2"
8d	3"	14 GA	2 1/2"	1 1/2"
10d	6"	14 GA	4"	1 1/2"
10d	4"	14 GA	3"	1 1/2"
10d	3"	14 GA	2"	1 1/2"

5 NAIL/STAPLE EQUIVALENT TABLE

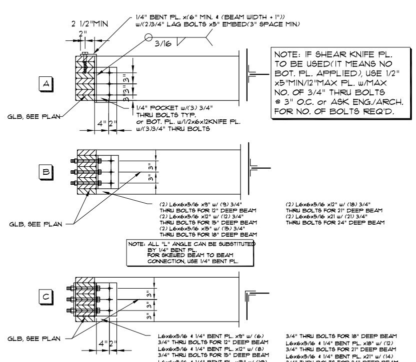


NOTE: NOTCHES AND DRILLED HOLES AS SHOWN ABOVE MAY BE USED ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER

2 TYP. HOLES AND NOTCHING IN BEAMS

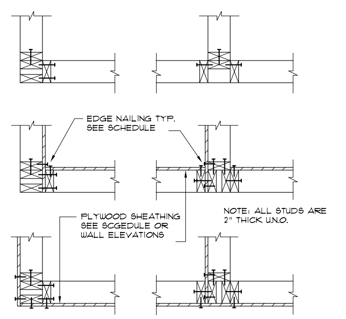


12 REINFORCED WINDOW OPNG. AS SHOWN ON PLAN A5

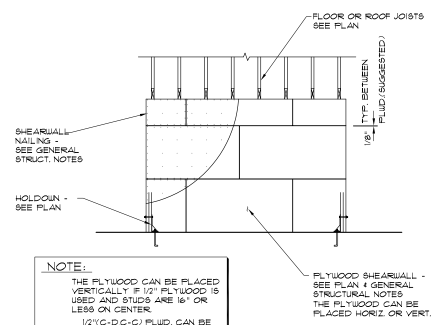


NOTE: IF SHEAR KNIFE PL. TO BE USED(IT MEANS NO BOT. PL. APPLIED), USE 1/2" x5"MIN/12"MAX PL. w/MAX NO. OF 3/4" THRU BOLTS @ 3" O.C. OR ASK ENG./ARCH. FOR NO. OF BOLTS REQ'D.

9

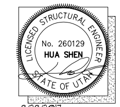


6 TYPICAL WALL INTERSECTION FRAMING



NOTE:
THE PLYWOOD CAN BE PLACED VERTICALLY IF 1/2" PLYWOOD IS USED AND STUDS ARE 16" OR LESS ON CENTER.
1/2"(C-D,C-C) PLWD. CAN BE SUBSTITUTED BY 7/16" OSB

3 TYPICAL SHEAR WALL ELEVATION



8/28/2017

NO.	REVISION	DATE

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HIGHSTAR CABIN 2050
KAMAS CITY, UTAH
SE17317

SCALE
AS NOTED
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STRUCTURE

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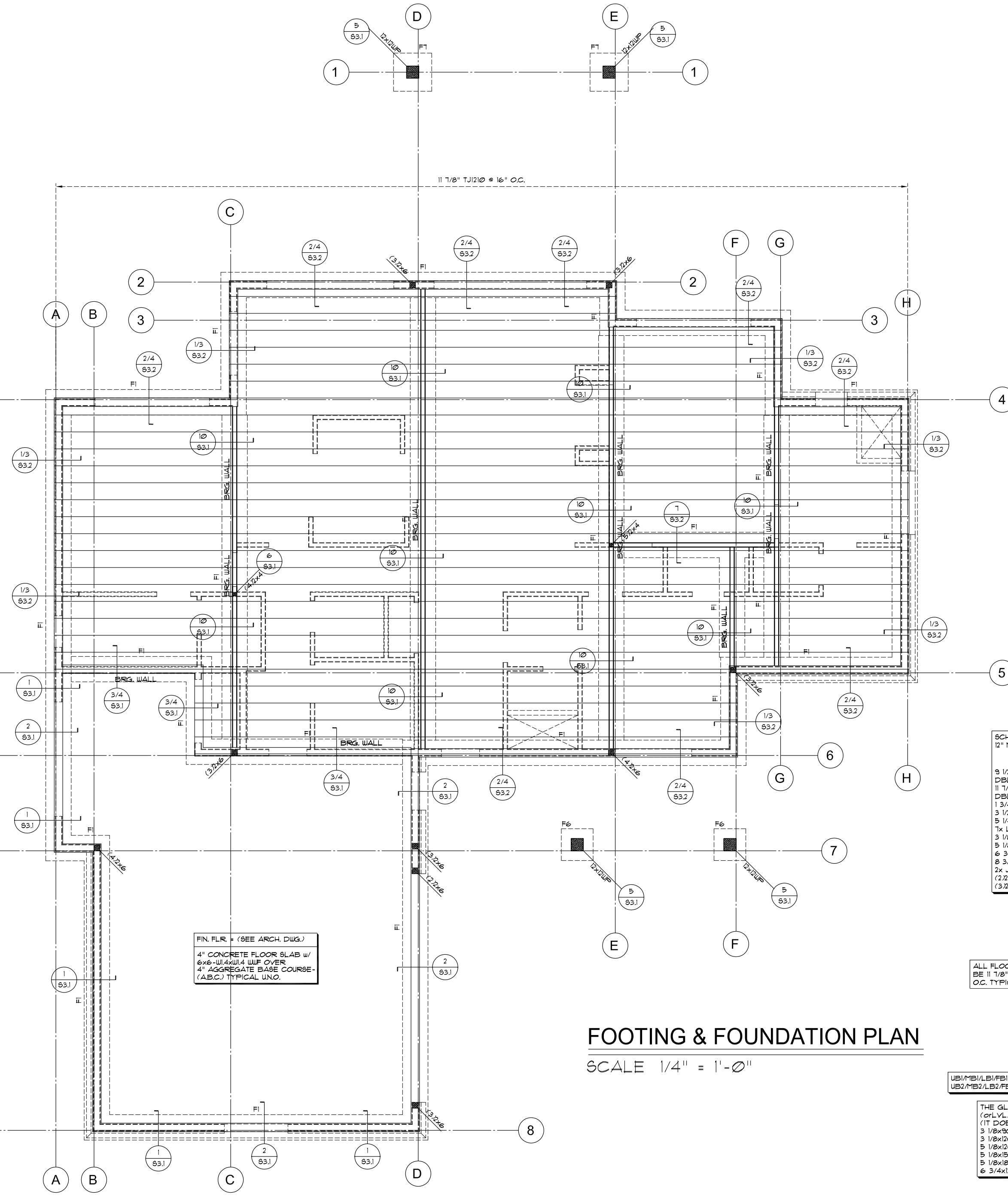
S1.3



FOOTING & FOUNDATION PLAN

SCALE 1/4" = 1'-0"

FLOOR FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND STANDARD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL SHEAR WALL DETAIL
   D. TYPICAL TOP PLATE SPLICE DETAIL
2. HDR-1 = HEADER, SEE HEADER SCHEDULE TYPICAL.
3. ALL FLOOR MEMBERS ARE TO BE 11 7/8" TJI 210 TYPICAL. U.N.O.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON WALL SHEATHING PLWD. OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL U.N.O.
10. "—⊳|" INDICATES MOMENT CONN. TYP. U.N.O.
11. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS. HOLDOWNS SHOWN ARE LAYING ON FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

TYPICAL FLOOR DECK:

3/4" PLWD./OSB SHEATHING, SPAN RATING 40/20
SEE GENERAL STRUCTURAL NOTES-TYPICAL
GLUE AND NAIL TO ALL JOISTS
8d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
8d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

FOUNDATION PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD CONCRETE DETAIL SHEET FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL EXCAVATION ADJACENT TO FOOTING
   C. TYPICAL SLAB JOINT DETAILS
   D. TYPICAL STEPPED FOOTING
2. WS - DENOTES CONCRETE WALL STEP.
3. F-1 - DENOTES FOOTING MARK - SEE FOOTING SCHEDULE.
4. K.C.J. - DENOTES KEYED CONSTR. JOINT - SEE STANDARD DETAIL.
5. C.J. - DENOTES CONTROL JOINT - SEE STANDARD DETAIL.
6. F-----S - DENOTES FOOTING STEP, SEE DETAIL TYPICAL.
7. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL FOR ALL DIMENSIONS, SLAB SLOPES & DEPRESSIONS NOT NOTED.
8. ALL SLABS ON GRADE ARE TO BE JOINTED AT NO MORE THAN 15'-0" EACH WAY USING JOINTS PER STANDARD DETAIL. IN ADDITION, NO SECTION OF CONCRETE SHALL HAVE AN ASPECT RATIO OF GREATER THAN 1 1/2:1. PROVIDE (2) #4 x 4'-0" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. ALL COLUMN ISOLATION JOINT CORNERS ARE TO BE INTERSECTED BY A SLAB JOINT OR REINFORCED WITH SLAB BARS PER ABOVE. SUBMIT COMPLETE JOINT LAYOUT PLAN TO THE ARCHITECT FOR PRIOR REVIEW.
9. ALL WOOD TO CONTACT w/ CONC. OR MASONRY TO BE P.T. OR REDWOOD TYP.
10. ALL FOUNDATION PL. ANCHOR BOLTS TO USE A MIN. 3x3x1/4 PL. WASHERS TYP.

FREE-STANDING RETAINING WALL, SEE DET. 7/ S3.1 FOR SCHED.

CONCRETE POUR NOTES:

1. VERIFY FTG STEP LOCATIONS AND HEIGHT IN FIELD PRIOR TO FORMING FOOTINGS. MAKE FTG REBAR CONTINUOUS THROUGH FTGS WITH BENT BARS AT CORNERS. LAP BARS 40 BAR DIAMETERS AT SPLICES AND TIE.
2. DO NOT POUR ANY CONCRETE UNTIL THE FORMS ARE ADEQUATELY BOLSTERED AND SUPPORTED AND ALL REBAR IS IN PLACE AND SECURED.
3. DO NOT PERMIT FIN. GRADE TO COME CLOSER THAN 6" TO TOP OF CONCRETE.
4. FOR FOUNDATIONS REBAR INSPECTIONS FOR FOUNDATION WALLS OVER 8'-0", FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED AND APPROVED.
5. PROVIDE A U-FER GROUND DURING CONSTRUCTION OF FOOTING & FOUNDATION.
6. ALL FASTENERS (IE NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (IE SILL PLATES) SHALL BE HOT-DIPPED, ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER(MEET THE REQUIREMENTS OF IBC 2304.9.5.)
7. ALL L ANGLES FOR SUPPORTING VENEERS ARE HOT-DIPPED GALVANIZED.

FOOTING SCHEDULE

BASED ON SOIL BEARING = 1500 PSF ARCH/CONTRACTOR VERIFY IT

MARK	SIZE	REINFORCING	REMARKS
F1	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	
F2	2'-6" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F3	3'-0" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F4	1'-4" x CONT. x 12"	(2) #4 CONT.	THICKENED SLAB
F5	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	THICKENED SLAB
F6	2'-6" SQ. x 12"	(2) #5 E.W.	
F7	3'-0" SQ. x 12"	(3) #5 E.W.	
F8	3'-6" SQ. x 12"	(4) #5 E.W.	
F9	4'-0" SQ. x 12"	(4) #5 E.W.	
F10	4'-6" SQ. x 12"	(5) #5 E.W.	
F11	5'-0" SQ. x 12"	(5) #5 E.W.	
F12	5'-6" SQ. x 13"	(6) #5 E.W.	
F13	6'-0" SQ. x 13"	(6) #5 E.W.	
F14	7'-0" SQ. x 14"	(6) #6 E.W.	
F15	8'-0" SQ. x 16"	(8) #7 E.W.	
F16	4'-0" x CONT. x 12"	(4) #5 CONT. #5x3'-6"@12" O.C.	
F15	9'-0" SQ. x 18"	(9) #8 E.W.	

SCHEDULE FOR SIMPSON HANGERS ON 12" MAX. BEAMS AND JOISTS TYP.

	TOP MOUNT HANGERS	FACE MOUNT HANGERS
9 1/2" TJI SERIES	ITS	IUS
DBL. 9 1/2" TJI	MIT	MIU
11 7/8" TJI110	ITS	IUS
DBL. 11 7/8" TJI	MIT	MIU
1 3/4x LVLorPSL	WPU	HU
3 1/2x LVLorPSL	GLTV	HU/HGU
5 1/4x LVLorPSL	GLTV/HGLTV	HU/HGU
7x LVLorPSL	HGLTV	HGUS
3 1/8x GLB	GLST	
5 1/8x GLB	GLST	
6 3/4x GLB	GLST	
8 3/4x GLB	HGLST	
2x JOISTS	HU	LUS
(2)2x	HUS-2TF	LUS
(3)2x	HUS-3TF	LUS

ON STRUCTURAL PLANS AND DETAILS, THERE ARE SOME OPTIONS. ARCHITECTS PLEASE SPECIFY THE OPTIONS. IF G.C. OR OWNER HAS ANY CONCERNS ON THE OPTIONS, CONTACT ARCHITECTS TO CLARIFY THEM TYP. U.N.O.

ALL FLOOR JOISTS TO BE 11 7/8" TJI210 @ 16" O.C. TYPICAL, U.N.O.

CONTRACTOR PLEASE SEE ARCH. DWG. FOR PLUMBING LOCATION OF BATHTUB , TOILET. PLEASE OFFSET JOISTS WHERE OCCURS. USE DOUBLE JOISTS UNDER BATHTUB, KITCHEN ISLAND, AND OTHER HEAVY STUFFS.

NOTE: FOR ALL (2)1 3/4x11 7/8LVL BM PROVIDE MIN. (2)2x6 AS END BEARINGS TYP. U.N.O.

UB1/MB1/LB1/FB1: (2)1 3/4x11 7/8 LVL
UB2/MB2/LB2/FB2: (3) 1 3/4x11 7/8 LVL or 5 1/8x12 GLB

THE GLB BEAMS CAN BE SUBSTITUTED BY PSL (orLVL)BEAMS AS FOLLOWS:
(IT DOESN'T WORK FROM PSL(orLVL) TO GLB TYP.)

3 1/8x9GLB	3 1/2x9 1/2PSL/(2)1 3/4x9 1/2LVL
3 1/8x12GLB	3 1/2x11 7/8PSL/(2)1 3/4x11 7/8LVL
5 1/8x12GLB	5 1/4x11 7/8PSL/(3)1 3/4x11 7/8LVL
5 1/8x15GLB	5 1/4x16PSL/(3)1 3/4x16LVL
5 1/8x18GLB	5 1/4x18PSL/(3)1 3/4x18LVL
6 3/4x12GLB	7x11 7/8PSL/(4)1 3/4x11 7/8LVL

EPOXY BOLTS CALLED OUT ON PLAN ARE SIMPSON "SET" FOR CMU APPLICATION (ICC ESR1772) & HILTI HIT RE 500-SD EPOXY BOLTS FOR CONC. APPLICATIONS (ICC ES ESR 2322).
THE INSTALLING REQUIREMENT FOR ANCHOR BOLTS AND/OR REBAR DOWELS ARE AS FOLLOWED:

DIAMETER/DRILL DIA./EMBED. DEPTH/EDGE DIST./SPACING DIST.
1/2" / 5/8" / 4 1/4" / 1 3/4" / 6 3/8"
5/8" / 3/4" / 5" / 1 3/4" / 7 1/2"
3/4" / 7/8" / 6 3/4" / 1 3/4" / 10 1/8"

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
8/28/2017

NO.	REVISION	DATE

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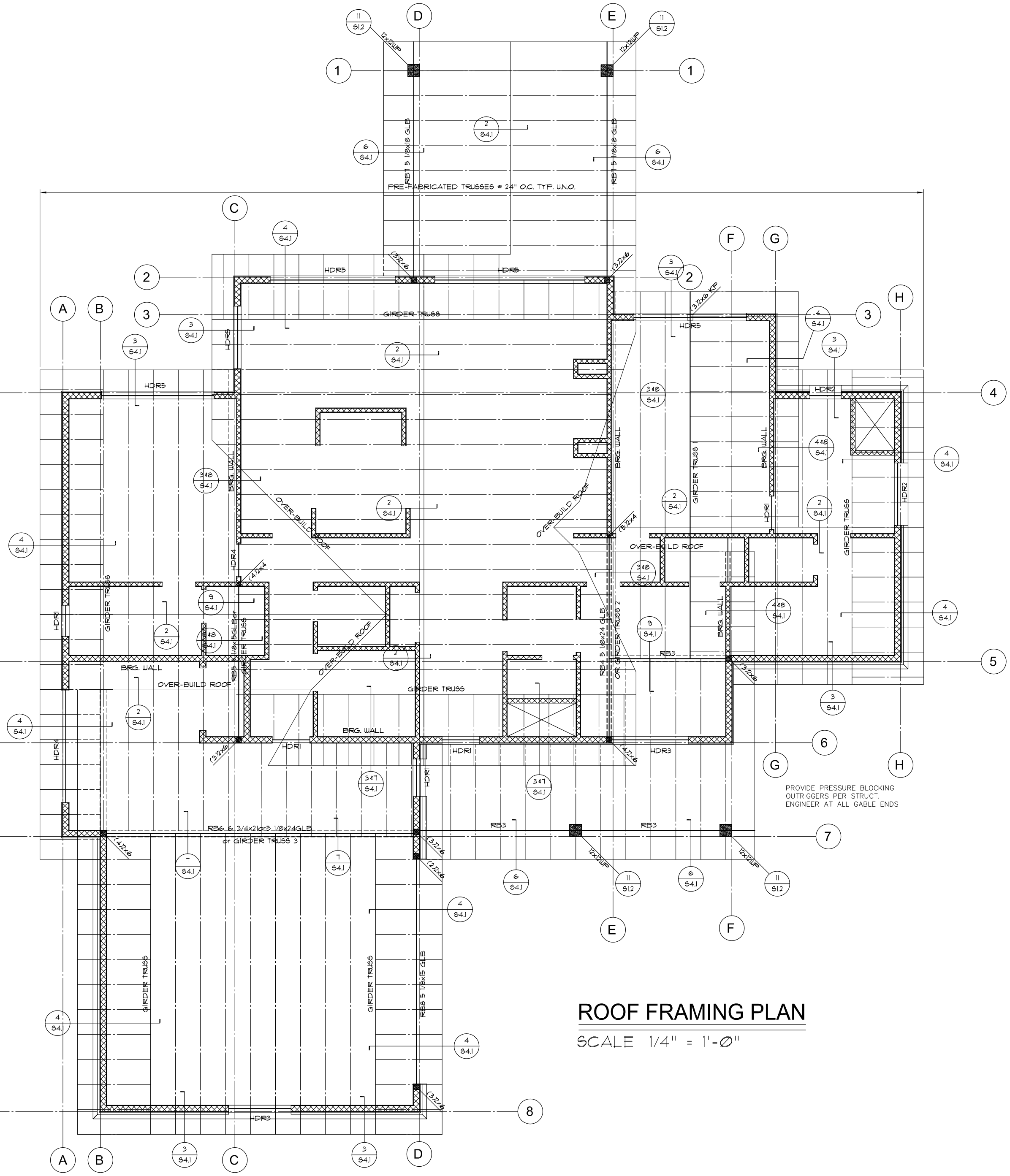
HIGHSTAR CABIN 2050
KAMAS CITY, UTAH
SE17317

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 8/27/2017
DRAWING NO. S2.1



ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"

HDR: HEADER, SEE SCHEDULE
HDN: HOLDOWN, SEE SCHEDULE
SW: WOOD SHEAR WALL, SEE SCHEDULE
BW:BEARING WALL
BWA: BEARING WALL ABOVE
NBW: NON-BEARING WALL
OBR: OVER-BUILD ROOF
GT: GIRDER TRUSS
KP: KING POST
DJ: DOUBLE JOISTS

ROOF TRUSS DESIGN CRITERIA

MARK	TOP CHPRD DEAD LOAD	BOTTOM CHD. DEAD LOAD	TOP CHPRD SNOW LOAD	TOTAL LOADS
REGULAR TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF
GIRDER TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF

NOTE: SNOW DRIFT SHALL BE INCLUDED ON DESIGN IF APPLIED
MIN. 1/2 OF ROOF SNOW LOAD SHALL BE APPLIED TO LOWER ROOF SNOW DRIFT.
SEE PLAN FOR POINT LOADS TO GIRDER TRUSSES IF APPLIED.

A TRUSS PACKAGE MUST BE SUBMITTED TO THE BUILDING OFFICIAL AS A DEFERRED SUBMITTAL. PRIOR TO SUBMITTING TO THE CITY, THE PACKAGE MUST BE REVIEWED BY THE ENGINEER OF RECORD AND STAMPED FOR GENERAL CONFORMANCE. NO TRUSSES ARE TO BE INSTALLED UNTIL APPROVED BY THE BUILDING OFFICIAL.

G.T. INDICATES GIRDER TRUSS TYP.

FOR THOSE TRUSSES RIGHT ABOVE THE SHEAR WALLS, A LATERAL LOAD OF 240 PLF ACTING ON TOP OF TRUSS WILL BE INCLUDED ON THE DESIGN OF TRUSSES TYP.

RB1: 5 1/8x12 GLB
RB2: (2)1 3/4x11 7/8 LVL
RB3: (3)1 3/4x11 7/8 LVL or 5 1/8x12 GLB

ROOF FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD WOOD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL TOP PLATE SPLICE DETAIL
   D. TYPICAL SHEAR WALL DETAIL
2. K.P. = KING POST, SEE PLAN FOR SIZE AND LOCATION TYPICAL.
3. ALL ROOF JOISTS OR TRUSSES ARE CALLED OUT ON PLAN. SEE PLAN FOR SIZE & SPACE TYP.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST/TRUSS BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST/TRUSS BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON ROOF DECK PLYWOOD OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE STANDARD DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL.
10. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

HEADER SCHEDULE

MARK	SIZE	END BRG.	REMARKS
HDR-1	(3)2x6	(2)2x6	
HDR2	(3)2x8	(2)2x6	or (3)1 3/4x5 1/2LVL
HDR-3	(3)2x10	(2)2x6	or (3)1 3/4x7 1/4LVL
HDR-4	(3)2x12	(3)2x6	or (3)1 3/4x9 1/2LVL
HDR-5	5 1/8x12 GLB	(3)2x6	or (3)1 3/4x11 7/8LVL
HDR-6	(2)2x6	(2)2x4	
HDR-7	(2)2x8	(3)2x4	or (2)1 3/4x5 1/2LVL
HDR-8	(2)2x10	(3)2x4	or (2)1 3/4x7 1/4LVL
HDR-9	(2)2x12	(3)2x4	or (2)1 3/4x9 1/2LVL
HDR-10	3 1/8x12 GLB	(4)2x4	or (2)1 3/4x11 7/8LVL

NOTES:
1. GLULAM BEAMS SHALL BE COMBINATION SYMBOL 24F-V4 FOR REGULAR BEAM AND 24F-V8 FOR CANTILEVERED BEAM TYPICAL.
2. ALL GLULAM BEAMS TO BE ZERO CAMBER BEAMS U.N.O.
3. ALL MULTI-MEMBER BEAMS & STUDS SHALL BE NAILED TOGETHER w/(2) ROWS 16d @ 6" O.C. BOTH SIDES TYPICAL.

NUMBER OF KING STUDS:
ONE KING STUD FOR OPNG. 2'-0" TO 5'-0"
TWO KING STUDS FOR OPNG. 5'-0" TO 10'-0"
THREE KING STUDS FOR OPNG. 10'-0" TO 15'-0"
FOUR KING STUDS FOR OPNG. 15'-0" TO 20'-0"

TYPICAL ROOF DECK:

5/8" PLWD/OSB SHEATHING, SPAN RATING 32/16
SEE GENERAL STRUCTURAL NOTES-TYPICAL
NAILING:
10d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
10d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

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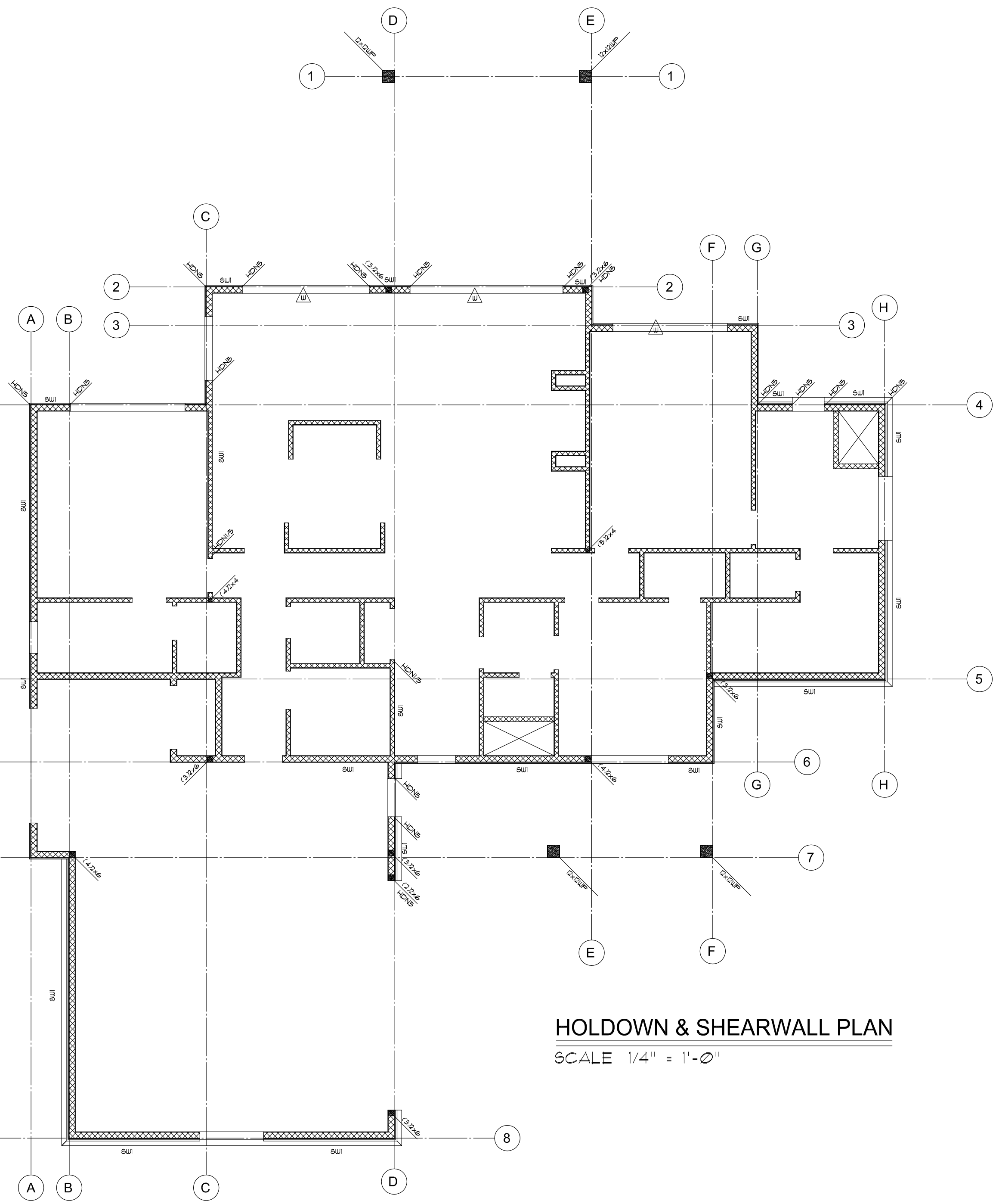
S2.2

Xrefs: S4212.DWG S4211.DWG S4210.DWG S4209.DWG S4208.DWG S4207.DWG S4206.DWG S4205.DWG S4204.DWG S4203.DWG S4202.DWG S4201.DWG TITLE.DWG



HOLDOWN & SHEARWALL PLAN

SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. / 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. / 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. / 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. / 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	END STUD	ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B

(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"ϕ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"ϕ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"ϕ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"ϕ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"ϕ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(W) INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ MARK / HEIGHT	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

NOTES: 1. FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

NOTES: FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
8/28/2017

NO.	REVISION	DATE

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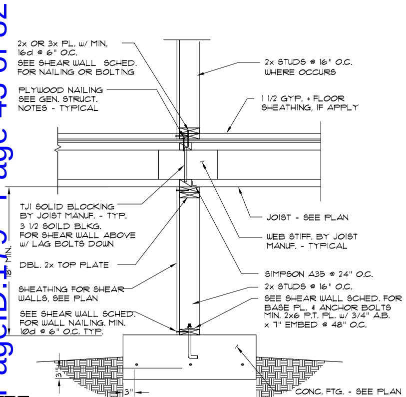
KAMAS CITY, UTAH
SE17317

SCALE
AS NOTED
DRAWING TITLE
STRUCTURE

DATE:
8/27/2017

DRAWING NO.
S2.3

Drawing: G:\S3.1.DWG.DWG
Xrefs: S3112.DWG S3111.DWG S3110.DWG S3109.DWG S3108.DWG S3107.DWG S3106.DWG S3105.DWG S3104.DWG S3103.DWG S3102.DWG S3101.DWG TITLE.DWG



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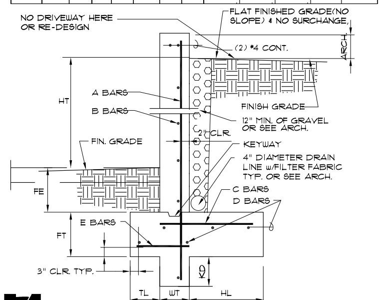
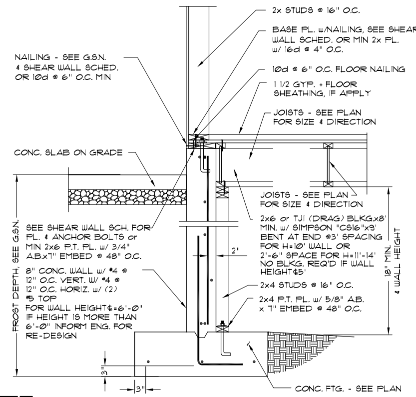
TYPICAL CONCRETE RETAINING WALL SCHEDULE												
MARK	HT (max)	FE	TL	WT	HL	FT	KD	A	B	C	D	E
W1	2-Ø"	2'-6"	8"	8"	8"	12"	Ø	#4 @ 16"	#4 @ 18"	NONE	#4 @ 12"	NONE
W2	4'-Ø"	2'-6"	1'-3"	8"	1'-3"	12"	Ø	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W3	6'-Ø"	2'-6"	2'-Ø"	8"	2'-Ø"	12"	Ø	#5 @ 10"	#5 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W4	8'-Ø"	2'-6"	2'-1Ø"	8"	2'-1Ø"	15"	Ø	#6 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 12"
W5	1Ø'-Ø"	2'-6"	3'-1Ø"	1Ø"	3'-1Ø"	19"	Ø	#7 @ 12"	#5 @ 12"	#5 @ 1Ø"	#5 @ 12"	#5 @ 12"



7 FREE-STANDING RETAINING WALL



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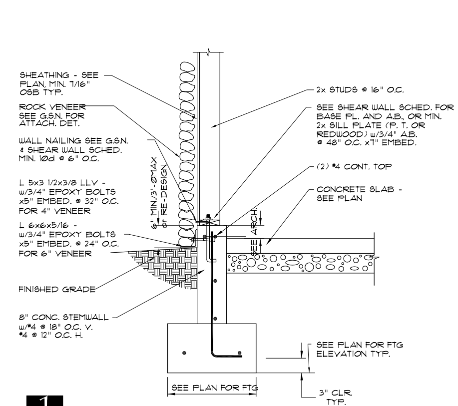

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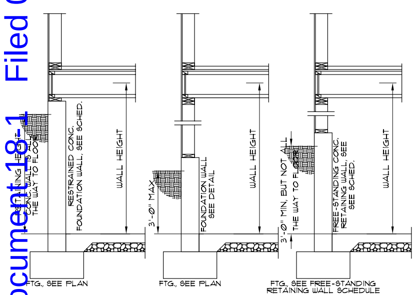
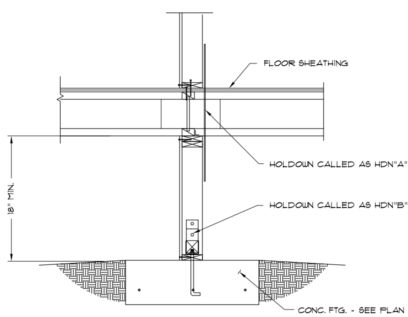
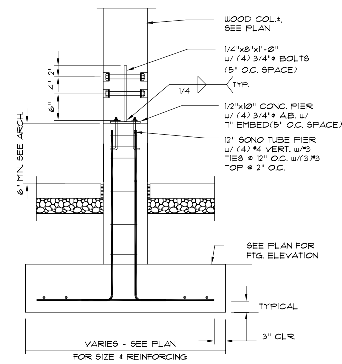


11 BASEMENT RETAINING WALL GUIDELINE



8 HOLDOWN ON RAISED FLOOR CALLED OUT AS HDN"A/B"



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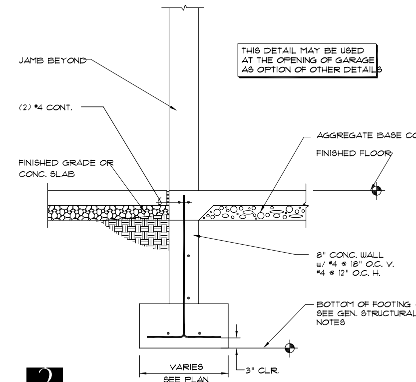

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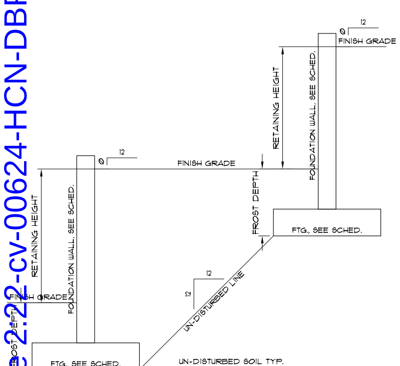
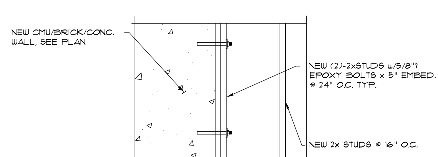
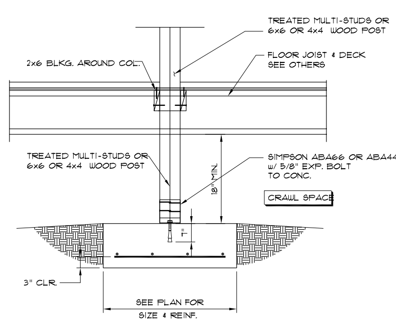


12 RETAINING WALL EXCAVATION GUIDELINE



9 CONC./CMU WALL-NEW STUD WALL CONNECTION



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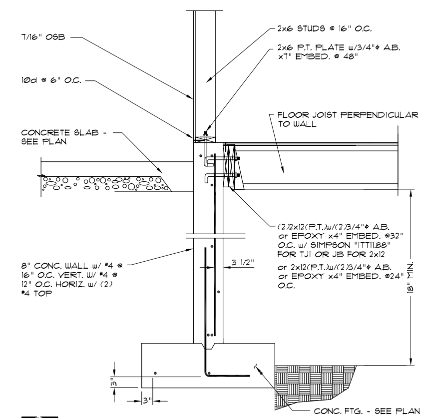

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LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
8/28/2017

NO.	REVISION	DATE

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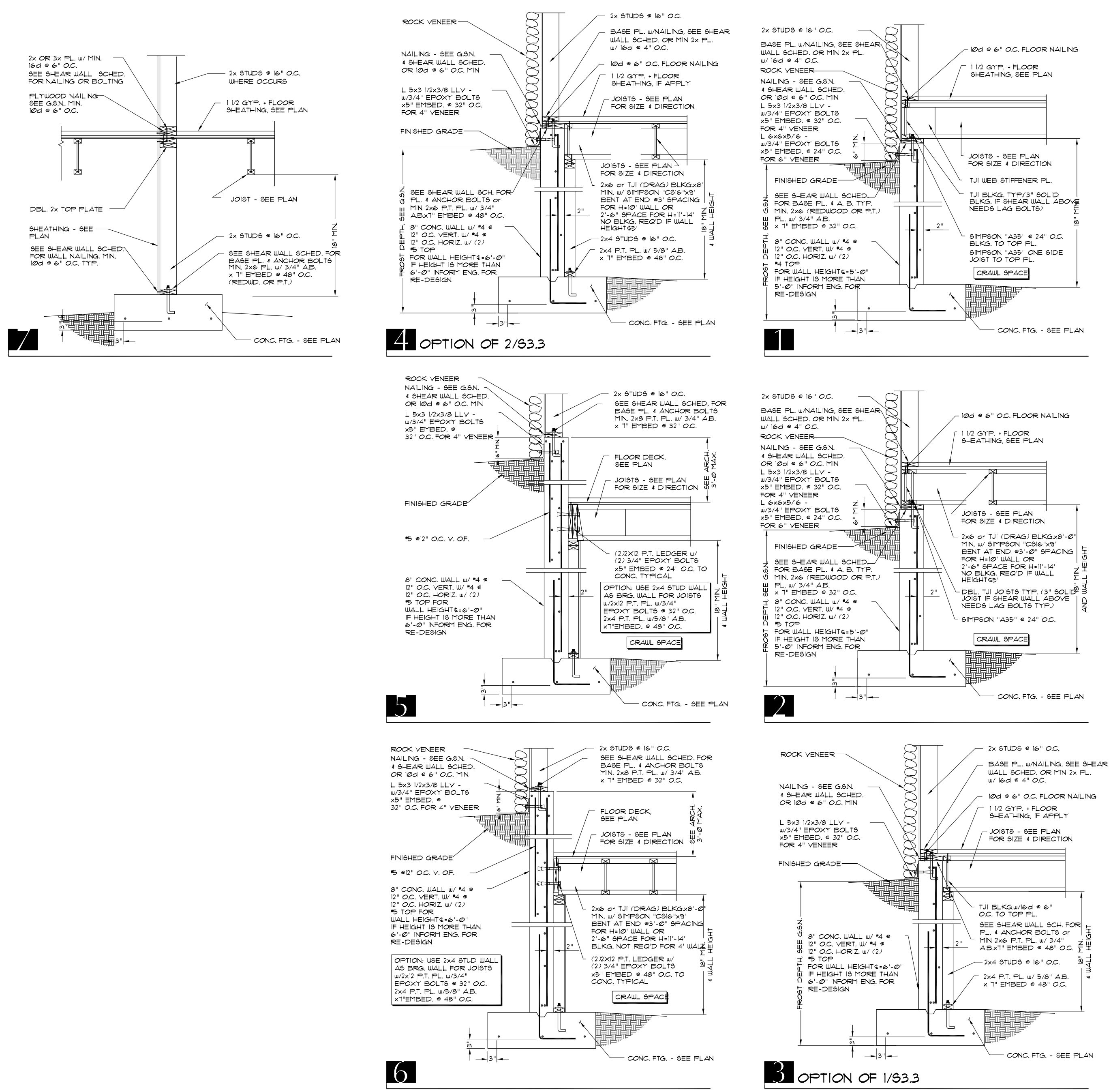
SCALE
AS NOTED
DRAWING TITLE
STRUCTURE

DATE: 8/21/2017
DRAWING NO.
S3.1

Drawing: OS31.DWG.DWG
Xrefs: S3112.DWG S3111.DWG S3110.DWG S3109.DWG S3108.DWG S3107.DWG S3106.DWG S3105.DWG S3104.DWG S3103.DWG S3102.DWG S3101.DWG TITLE.DWG



(seal) LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
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DATE: 8/27/2017
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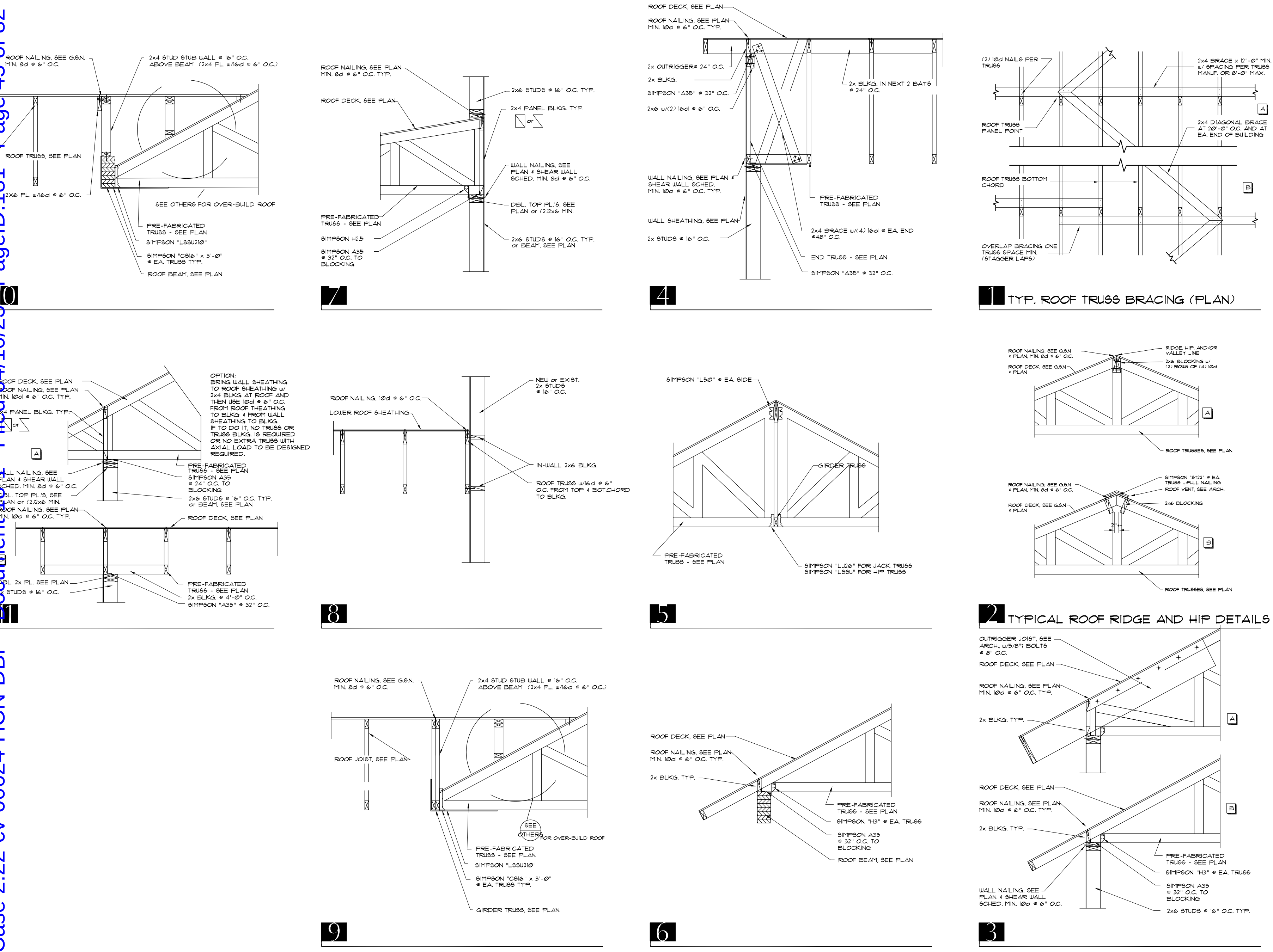
S3.2



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HIGHSTAR CABIN 2050

KAMAS CITY, UTAH

SE17317

SCALE

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DRAWING TITLE

STRUCTURE

DATE: 8/27/2017

DRAWING NO.

S4.1

EXHIBIT D

GENERAL STRUCTURAL NOTES:

I. GENERAL:

A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS SHALL BE TYPICAL AND APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE.
B. CONTRACTOR SHALL COMPARE ALL DIMENSIONS AND CONDITIONS ON CONTRACT DOCUMENTS AND AT THE SITE. ANY OMISSION OR CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IN CASE OF ANY CONFLICT FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY ARCHITECT/ENGINEER.
C. SEE THE ARCHITECTURAL DRAWINGS FOR DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, RECESSES, DEPRESSIONS, ETC.
D. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL PORTIONS OF THE BUILDING UNTIL THE ENTIRE STRUCTURE OF THE BUILDING IS COMPLETE.
E. OBSERVATION VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVES SHALL NOT BE CONSTRUED AS INSPECTION OR APPROVAL OF CONSTRUCTION.
F. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN UTAH.

II. DESIGN CRITERIA:

A. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) W/ AMENDMENTS
B. LOADINGS:
1. ROOF SNOW LOAD = 90 PSF + SNOW DRIFT PER IBC
2. TYPICAL FLOOR LIVE LOAD = 40 PSF
3. WIND LOAD – 115 MPH ZONE – EXPOSURE C
4. SEISMIC DESIGN DATA: SDC=D2, Sa=0.98,S1=0.300,I=1,R=6.5, Fa=1.2, WOOD SHEAR WALL SYSTEM, V=0.102, IRREGULARITY=1.0, SITE CLASS: D, EQUIVALENT LATERAL FORCE PROCEDURE
C. FOUNDATION:
1. ALL EXTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 36" BELOW LOWEST ADJACENT FINISH FLOOR OR FINISH GRADE ONTO UNDISTURBED EXISTING SUBSOILS HAVING A MINIMUM NET BEARING CAPACITY OF 1500 PSF. ALL INTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 1'-3" BELOW LOWEST ADJACENT FINISH FLOOR ONTO SUBSOILS.

III. CONCRETE:

A. ALL MATERIALS SHALL COMPLY WITH ACI 318 AND ACI 347 PUBLICATIONS AND APPLICABLE ASTM PUBLICATIONS.
B. CONCRETE MATERIAL PROPERTIES: 28-DAY COMPRESSIVE STRENGTHS ARE TO BE 3000 PSI TYPICAL UNLESS NOTED OTHERWISE. DESIGN BASED ON 2500 PSI.
C. CAST IN PLACE CONCRETE:
1. SPACING OF CONSTRUCTION JOINTS OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 40 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
2. PROVIDE EXTRA REINFORCING AROUND ALL OPENINGS EXCEEDING 24 INCHES SQUARE OR ROUND IN ALL SLABS AND WALLS EQUAL TO TWO #5 BARS ON FOUR SIDES AND EXTEND TWO FEET BEYOND THE OPENING.
3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
4. PROVIDE CLASS B LAP SPLICES FOR ALL REINFORCING UNLESS NOTED OTHERWISE.
5. PROVIDE ISOLATION JOINTS AROUND ALL COLUMNS AT ALL EXPOSED SLAB ON GRADE AREAS.

IV. REINFORCING STEEL:

A. ALL BARS #4 AND LARGER TO BE ASTM A 615, GRADE 60. ALL #2 AND #3 BARS TO BE ASTM A 615, GRADE 40. DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI-318, LATEST ADOPTION.
B. ALL REINFORCING STEEL SHALL BE BENT, DETAILED AND CHAIRED AS PER "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES".
C. WELDED WIRE FABRIC TO BE IN ACCORDANCE WITH ASTM A 185.
D. ALL BARS INDICATED ON THE PLANS TO BE WELDED SHALL CONFORM TO ASTM A706 (GRADE 60).
E. CONCRETE COVER REQUIREMENTS FOR DEFORMED BAR REINFORCING STEEL SHALL COMPLY WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE".
1. CAST-IN-PLACE CONCRETE:
a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
b) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER: 2"
#5 BARS AND SMALLER: 1-1/2"
c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS JOISTS: #11 BARS OR SMALLER: 3/4"
BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1-1/2"
F. DETAILING: SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE ONLY AFTER REVIEW AND APPROVAL. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
1. LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
30 BAR DIAMETER FOR #3 AND #4 BARS
40 BAR DIAMETER FOR #5 THROUGH #8 BARS
DO NOT SPLICE STIRRUPS AND TIES
DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN.
2. ALL EMBEDMENTS AND DOWELS SHALL BE SECURELY TIED TO FORMWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

V. STRUCTURAL AND MISCELLANEOUS STEEL:

A. MATERIAL PROPERTIES:
1. ALL SHAPES, PLATES, ANGLES, AND CHANNELS TO BE ASTM A-36 UNLESS NOTED OTHERWISE.
2. ALL WF SHAPES WEIGHING 84 POUNDS PER LINEAR FOOT OR LESS TO BE ASTM A 572, GRADE 50. ALL WF SHAPES WEIGHING MORE THAN 84 POUNDS PER LINEAR FOOT TO BE ASTM A 572, GRADE 36.
3. SQUARE OR RECTANGULAR TUBES TO BE ASTM A 500, GRADE B, Fy = 46 KSI.
4. ALL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS, LATEST ADOPTION.
B. WELDING:
1. FOR STRUCTURAL STEEL TO BE IN ACCORDANCE WITH A.W.S. REQUIREMENTS FOR E70XX ELECTRODES.
C. BOLTS:
1. ALL BOLTS TO BE 3/4" DIAMETER ASTM A 325-N UNLESS NOTED OTHERWISE.
2. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.
3. ANCHOR BOLTS SHALL BE ASTM A 307 OR A 36.

VI. WOOD:

A. DIMENSIONAL LUMBER: ALL TO BE GRADE STAMPED PER W.C.L.B. RULES.
1. ALL JOISTS, BEAMS, PLATES, HEADERS AND OTHER LUMBER TO BE D.FIR/LARCH #2 UNLESS OTHERWISE NOTED.
2. 2 X 4 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
3. 2X 6 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
4. PURLINS TO BE D.FIR DENSE #1.
5. 4X AND 6X POSTS TO BE D.FIR/LARCH NO.1.
6. WALL STUDS TO BE D.FIR/LARCH #2 GRADE OR BETTER.
B. WOOD DECKING: FLOOR DECKING SHALL BE COMMERCIAL 2 X 6 (NOMINAL TONGUE AND GROOVE DECKING, HEM-FIR OR BETTER WITH A REPETITIVE Fb OF 1450 PSI MINIMUM.
C. GLU-LAMS:
1. TO BE GRADE STAMPED PER A.I.T.C., D.FIR/LARCH COMBINATION 24F-V8 FOR CONTINUOUS SPANS AND D.FIR/LARCH COMBINATION 24F-V4 FOR SIMPLE SPANS. GLUED WITH WATERPROOF GLUE.
D. PLYWOOD:
1. ROOF SHEATHING TO BE STD 5/8" OSB OR C-D WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
2. FLOOR SHEATHING TO BE STD 3/4" OSB OR C-C T&G WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 8d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 8d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
3. EXTERIOR WALLS TO BE STD 7/16" OSB OR 1/2" C-C WITH EXTERIOR GLUE. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING AND NAILING.
E. PLYWOOD WEB I JOISTS:
1. TO BE DESIGNED, DETAILED AND FABRICATED BY TRUS-JOIST AND HAVE THE APPROVAL OF ICBO.
2. JOISTS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
3. DESIGN JOISTS FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
F. SPECIAL TREATMENTS (AMERICAN WOOD PRESERVERS INSTITUTE STANDARDS):
1. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL: PRESSURE TREAT WITH WOLMAN CCA PRESERVATIVE OR EQUAL AS APPROVED BY THE ARCHITECT.
2. FIRE RETARDANT: PRESSURE TREAT WITH DRICON OR EQUAL AS APPROVED THE ARCHITECT.
G. WOOD NAILING SCHEDULE:
1. JOIST TO SILL OR GIRDER, TOENAIL 3-8d
2. BRIDGING TO JOIST, TOENAIL EACH END 2-8d
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST FACE NAIL 2-8d
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST, FACE NAIL 3-8d
5. SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL 2-16d
6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL 2-16d
7. TOP PLATE TO STUD, END NAIL 2-16d
8. STUD TO SOLE PLATE TOENAIL 4-8d OR BASE NAIL 2-16d
9. DOUBLE STUDS, FACE NAIL 16d @ 24" o.c.
10. DOUBLED TOP PLATES, FACE NAIL 16d @ 16" O.C.
11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2-16d
12. CONTINUOUS HEADER, 2 PIECES 16d @ 16"O.C. ALONG 2 EDGES
13. CEILING JOISTS TO PLATE, TOENAIL 3-8d
14. CONTINUOUS HEADER TO STUD, TOENAIL 4-8d
15. CEILING JOIST, LAPS OVER PARTITIONS FACE NAIL 3-16d
16. CEILING JOIST TO PARALLEL RAFTERS FACE NAIL 3-16d
17. RAFTER TO PLATE, TOENAIL 4-8d
18. BRACE TO EACH STUD AND PLATE, FACE NAIL 2-8d
19. 1"X8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL 2-8d
20. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL 3-8d
21. BUILT UP CORNER STUDS 16d @ 24" O.C.
22. BUILT-UP GIRDERS AND BEAMS 20d @ 32"O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT EACH END & SPLICE
23. PLANKS 2-16d AT EACH BEARING

VII. MISCELLANEOUS:

A. GYPSUM WALLBOARD: FOR SHEAR WALLS TO BE STANDARD 1/2" GYPSUM WALLBOARD, NAIL WITH 5D COOLER NAILS AT 7" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
B. STUCCO: FOR SHEAR WALLS TO BE STANDARD 7/8" PORTLAND CEMENT PLASTER ON EXPANDED METAL OR WOVEN WIRE LATH. NAIL WITH NO.11 GAGE, 1 1/2" LONG, 7/16" HEAD NAILS OR NO.16 GAGE STAPLES WITH 7/8" LONG LEGS AT 6" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.

VIII. SPECIAL INSPECTION: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.
A. EPOXY BOLTS IN TENSION IF APPLY.

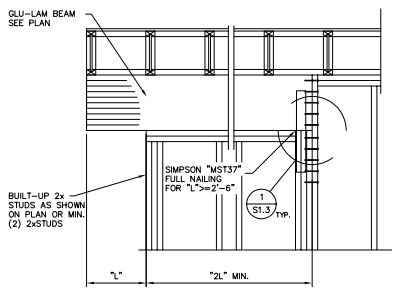
IX. BRICK AND/OR STONE VENEER NOTES:
1. TO WOOD STUD WALLS: VENEER SHALL BE ATTACHED TO THE WOOD STUDS WITH A 1" MINIMUM WIDE X 22 GAUGE, GALVANIZED, CORRUGATED BRICK TIE SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER. CORRUGATED METAL TIES SHALL FORM A 180-DEGREE HOOK AROUND THE NO. 9 GAUGE WIRE USED AS HORIZONTAL JOINT REINFORCEMENT IN THE VENEER. SPOT BEDDING AT THE CORRUGATED TIES SHALL BE OF CEMENT MORTAR ENTIRELY SURROUNDING THE TIES. ATTACH TIES TO STUDS WITH A MINIMUM #10 X 1 1/2" WOOD SCREW.
2. TO CONCRETE WALLS: 22 GAUGE GALVANIZED DOVETAIL SLOTS SHALL BE INSTALLED VERTICALLY IN CONCRETE AT 16" O.C. VENEER SHALL BE ATTACHED TO THE CONCRETE WITH 1" X 22 GAUGE, CORRUGATED, GALVANIZED DOVETAIL BRICK ANCHORS OR 3/16" DIAMETER GALVANIZED DOVETAIL TRIANGLE WIRES SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER.
3. OTHER METHODS OF ATTACHMENT MAY BE USED AFTER WRITTEN ACCEPTANCE BY THE ARCHITECT AND STRUCTURAL ENGINEER.

X. PREFABRICATED WOOD TRUSSES:

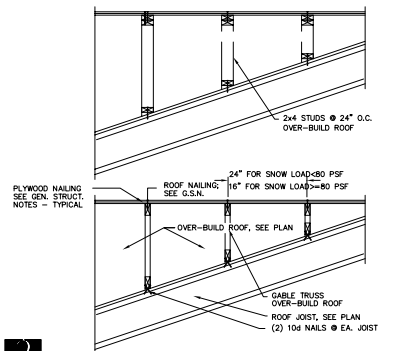
1. TO BE "GANG-NAIL" OR "ALPINE" OR APPROVED EQUAL DESIGNED, DETAILED AND FABRICATED IN ACCORDANCE WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING" AND THE TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION.
2. LOADING:
a) TRUSS TOP CHORDS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
b) TRUSS BOTTOM CHORDS ARE TO BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 5 PSF.
c) DESIGN TRUSSES FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
d) FOR TRUSSES MANUFACTURED SUCH THAT ALL CHORDS ARE MSR LUMBER AND ALL CHORD SPLICES ARE FINGER JOINTS AND PROOF LOADED IN ACCORDANCE WITH U.B.C STANDARDS, THE ALLOWABLE STRESS INCREASE FOR DURATION OF LOAD MAY BE THE MAXIMUM PERMITTED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING", LATEST ADOPTION.
3. SUBMITTALS:
a) COMPLETE DESIGN CALCULATIONS SHALL BE FURNISHED TO THE ENGINEER FOR EACH TRUSS. CALCULATIONS MUST BE PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF UTAH.
b) SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
c) THE TRUSS MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE TRUSS QUALITY IS IN CONFORMANCE TO "QUALITY STANDARD FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION, PUBLISHED BY THE TRUSS PLATE INSTITUTE.
d) THE TRUSS MANUFACTURER SHALL HAVE A QUALITY ASSURANCE PROGRAM IN ACCORDANCE WITH SECTION 25-1739 OF UBC STANDARD NO. 25-17 AND PROVIDE WRITTEN CERTIFICATION OF COMPLIANCE FROM THE INDEPENDENT TESTING AGENCY.
4. GENERAL:
a) ALL TRUSSES AND RELATED BRACING SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS.
b) LUMBER USED FOR CHORDS AND WEBS SHALL HAVE A MAXIMUM MOISTURE CONTENT BELOW 19% AT THE TIME OF FABRICATION.
c) ALL TRUSS MEMBERS SHALL MEET OR EXCEED VISUAL REQUIREMENTS FOR NO. 2 GRADE. NO WANE SHALL BE PERMITTED IN THE CONNECTION AREA.
d) DESIGN LATERAL RESISTANCE VALUES FOR TRUSS PLATES AND METAL WEBS SHALL BE 80% OF ICBO ALLOWABLE LOAD VALUES.
e) THE HANKINSON FORMULA OR STRAIGHT LINE INTERPOLATION SHALL BE USED TO DETERMINE LATERAL RESISTANCE VALUES FOR PLATE TO WOOD GRAIN ANGLES BETWEEN 0 AND 90 DEGREES.
f) AT CHORD SPLICE LOCATIONS, MAXIMUM TENSION FORCES SHALL BE AS FOLLOWS:

PLATE GAGE	2X4	2X6
20	3500 #	5000 #
18	4800 #	7000 #
16	6000 #	9000 #

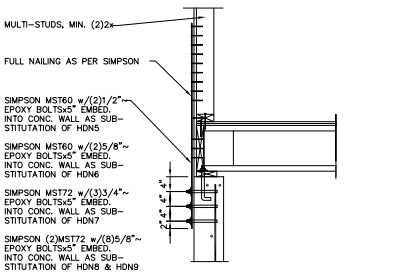
g) THE AXIAL FORCE FOR A 2X4 WEB SHALL NOT EXCEED 3500 LBS.
h) TRUSS PLATES SHALL BE SIZED SO THAT THEY CAN BE CENTERED BOTH HORIZONTALLY AND VERTICALLY ON THE JOINT UNLESS THE CHORD DEPTH OR THE TRUSS GEOMETRY PROHIBITS SUCH PLACEMENT.
i) EVERY TRUSS PLATE SHALL BE FULLY EMBEDDED INTO THE UNDERLYING WOOD ACROSS THE ENTIRE CONTACT AREA.
j) ALL TRUSSES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "HANDLING AND ERECTING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE. TEMPORARY BRACING SHALL BE INSTALLED DURING ERECTION AS REQUIRED BY THE LATEST EDITION OF "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE.



1 TYP. IN-WALL CANTILEVERED EAVE BEAM



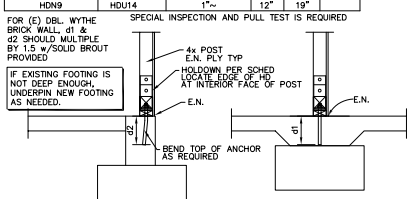
2 SUGGESTED OVER-BUILD ROOF DETAIL



4 HOLDOWN INSTALLATION WITH EPOXY BOLTS

HOLDOWN ALTERNATES w/ SIMPSON "SET-XP" - ESR2508					
HOLDOWNS CALLED OUT ON PLAN	SIMPSON HOLDOWNS	NEW ANCHORS SIMPSON "SET-XP"	d1*	d2*	d2 @ CORNER
HDN5	HDU2	5/8"~	6"	6"	10"
HDN6	HDU5	5/8"~	6"	8"	14"
HDN7	HDU8	7/8"~	8"	13 1/2"	
HDN8	HDU11	1"~	8"	16"	
HDN9	HDU14	1"~	12"	19"	

SPECIAL INSPECTION AND PULL TEST IS REQUIRED



3 HOLDOWN INSTALLATION WITH EPOXY BOLTS

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
11/5/2017

NO.	REVISION	DATE

Shen Engineers,Inc.
Structural/Seismic Consultants
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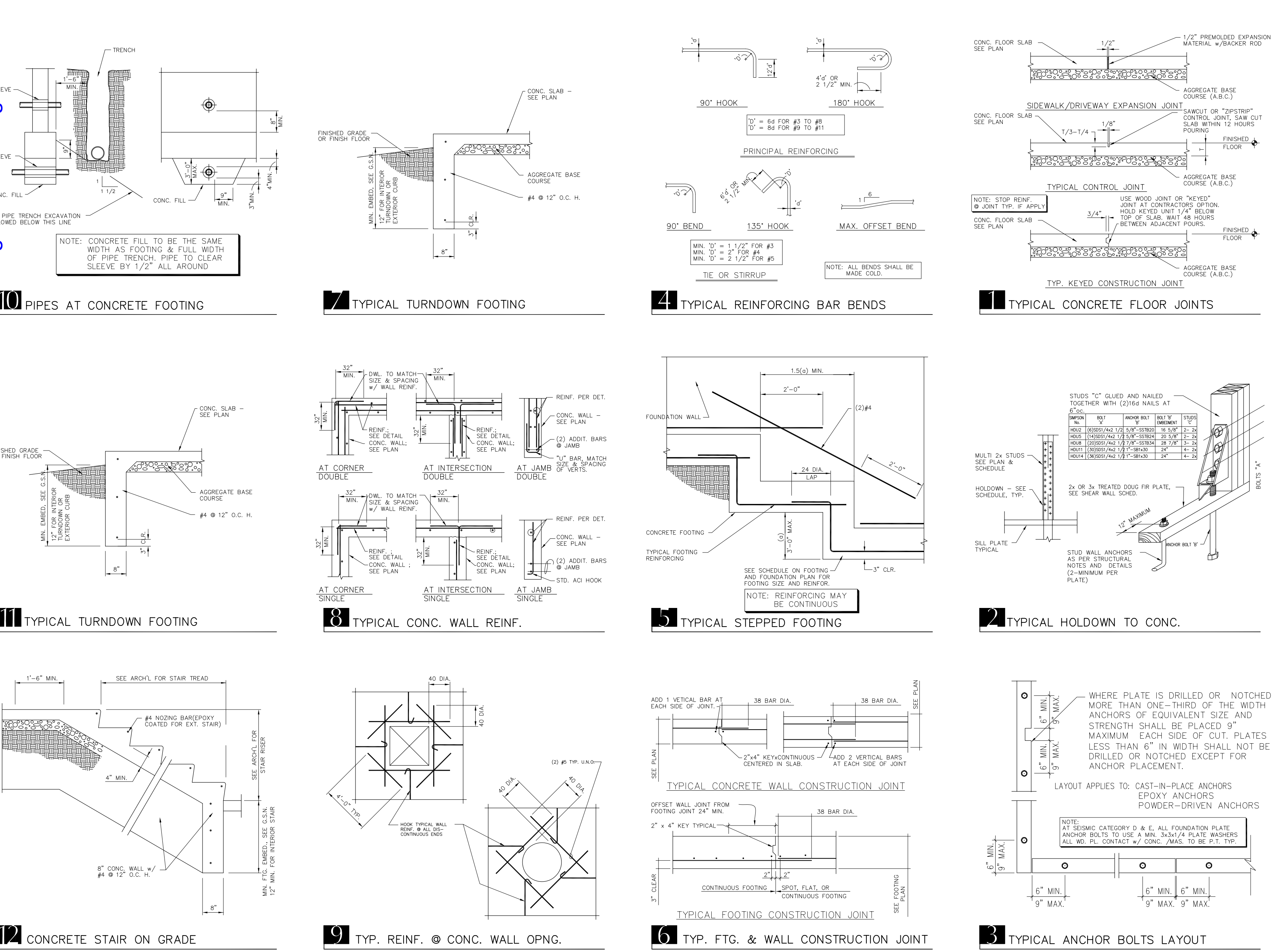
SCALE AS NOTED
DRAWING TITLE STRUCTURE

DATE: 11/5/2017
DRAWING NO. S1.1

SHEN000031



LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
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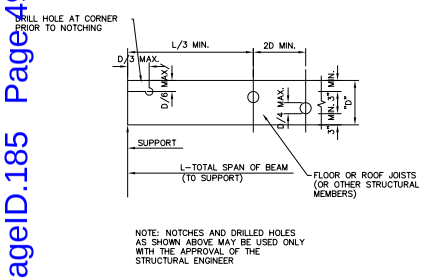
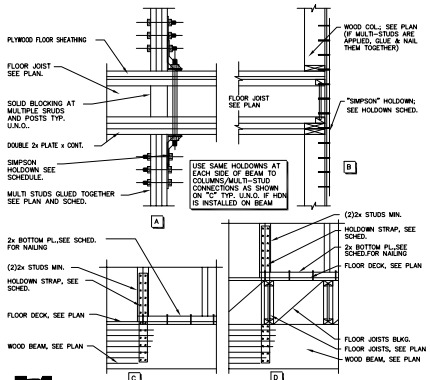
SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

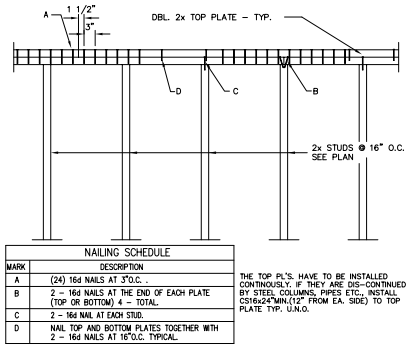
DATE: 11/5/2017
DRAWING NO.
S1.2



10 TYP. HOLES AND NOTCHING IN BEAMS



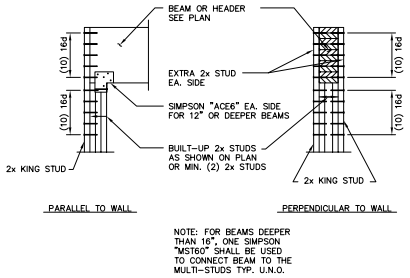
7 HOLDOWNS AT FLOOR TO FLOOR



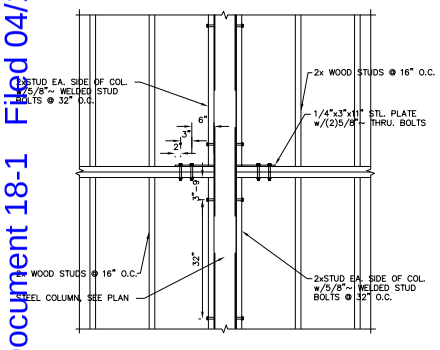
NAILING SCHEDULE	
MARK	DESCRIPTION
A	(24) 16d NAILS AT 3"O.C. .
B	2 – 16d NAILS AT THE END OF EACH PLATE (TOP OR BOTTOM) 4 – TOTAL.
C	2 – 16d NAIL AT EACH STUD.
D	NAIL TOP AND BOTTOM PLATES TOGETHER WITH 2 – 16d NAILS AT 16"O.C. TYPICAL.

THE TOP PL'S. HAVE TO BE INSTALLED CONTINOUSLY. IF THEY ARE DIS-CONTINUED BY STEEL COLUMNS, PIPES ETC., INSTALL CS16x24"MIN.(12" FROM EA. SIDE) TO TOP PLATE TYP. U.N.O.

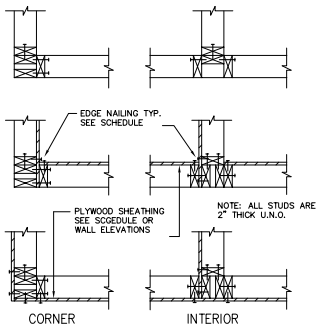
4 TYPICAL TOP PLATE SPLICE



1 TYPICAL WOOD HEADER OR BEAM TO MULTI-STUDS CONNECTION



11 TYP. STEEL COLUMN TO STUD WALL CONNECTION

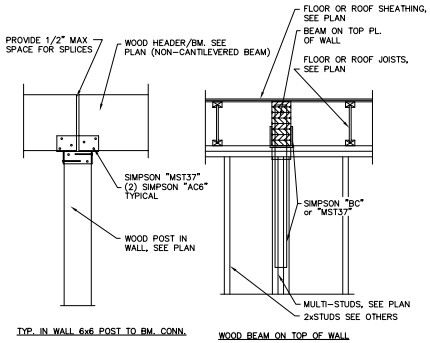


8 TYPICAL WALL INTERSECTION FRAMING

NAIL/STAPLE EQUIVALENT TABLE.

FLOORS AND ROOF				
NAILS		STAPLES		
SIZE	SPACING	SIZE	SPACING	LENGTH
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	2 1/2"	14 GA	2 1/2"	1 1/2"
8d	2"	14 GA	2"	1 1/2"
10d	6"	14 GA	4"	1 5/8"*
10d	4"	14 GA	2 1/2"	1 5/8"*
10d	2 1/2"	14 GA	2"	1 5/8"*
* IN 3/4" PLYWOOD USE 2" STAPLES				
WALL				
3/8" PLYWOOD				
8d	6"	14 GA	6"	1 3/8"
8d	4"	14 GA	4"	1 3/8"
8d	3"	14 GA	3"	1 3/8"
8d	2"	14 GA	2"	1 3/8"
1/2" PLYWOOD				
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	3"	14 GA	2 1/2"	1 1/2"
10d	6"	14 GA	4"	1 1/2"
10d	4"	14 GA	3"	1 1/2"
10d	3"	14 GA	2"	1 1/2"

5 NAIL/STAPLE EQUIVALENT TABLE



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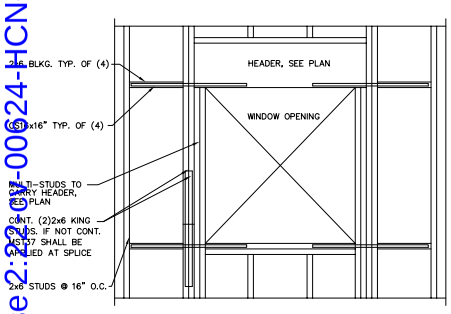
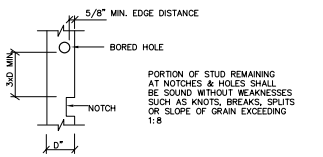
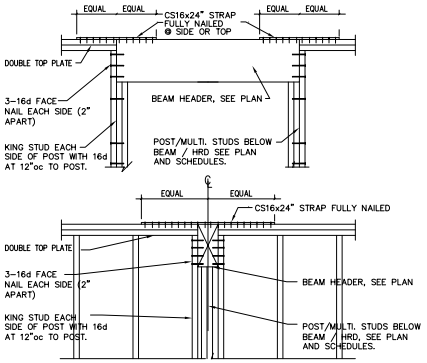


12 REINFORCED WINDOW OPNG. AS SHOWN ON PLAN AS A

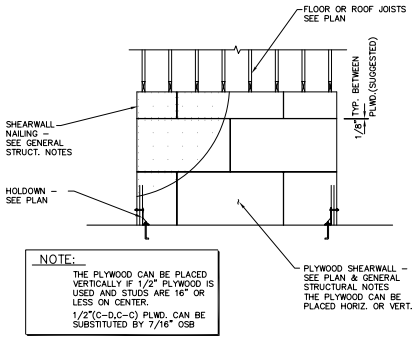


WOOD STUD SIZE	BEARING		NON-BEARING	
	MAX. HOLE (40%)	MAX. HOLE (25%)	MAX. HOLE (60%)	MAX. HOLE (40%)
2x4	1 3/8"	7/8"	2 1/8"	1 3/8"
2x6	2 3/16"	1 3/8"	3 5/16"	2 3/16"

9



6 TYP. TOP PL. THRU BEAM HEADER IN WALL



3 TYPICAL SHEAR WALL ELEVATION

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
11/5/2017

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NO.	REVISION	DATE

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SE17424

SCALE: AS NOTED
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DATE: 11/5/2017
DRAWING NO. S1.3

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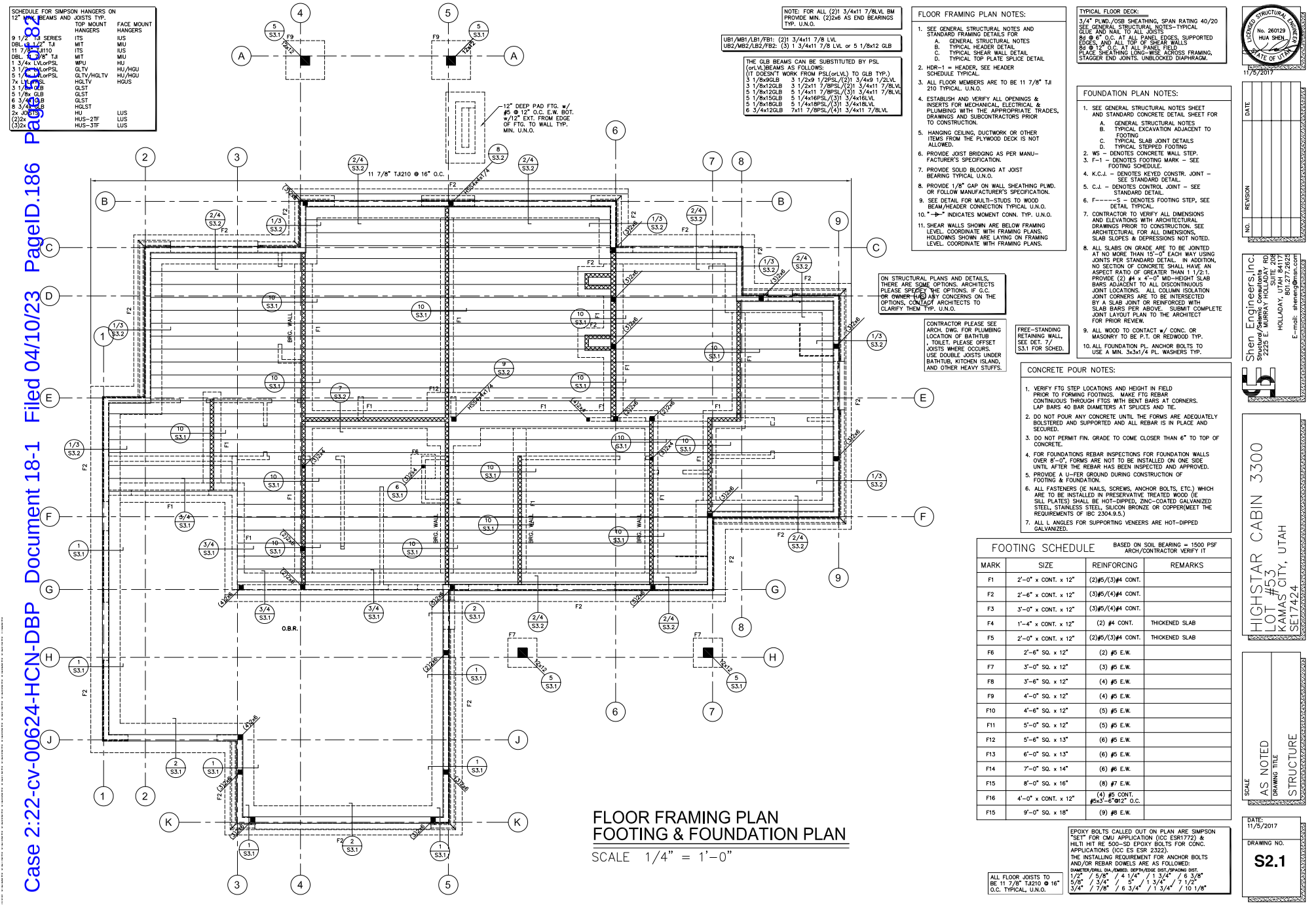

FLOOR FRAMING PLAN
FOOTING & FOUNDATION PLAN

SCALE 1/4" = 1'-0"

FLOOR FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND STANDARD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL SHEAR WALL DETAIL
   D. TYPICAL TOP PLATE SPLICE DETAIL
2. HDR-1 = HEADER, SEE HEADER SCHEDULE TYPICAL.
3. ALL FLOOR MEMBERS ARE TO BE 11 7/8" TJI 210 TYPICAL. U.N.O.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST BRIDGING AS PER MANU-FACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON WALL SHEATHING PLWD. OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL U.N.O.
10. "→" INDICATES MOMENT CONN. TYP. U.N.O.
11. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS. HOLDOWNS SHOWN ARE LAYING ON FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

TYPICAL FLOOR DECK:

3/4" PLWD./OSB SHEATHING, SPAN RATING 40/20 SEE GENERAL STRUCTURAL NOTES-TYPICAL GLUE AND NAIL TO ALL JOISTS
8d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
8d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

FOUNDATION PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD CONCRETE DETAIL SHEET FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL EXCAVATION ADJACENT TO FOOTING
   C. TYPICAL SLAB JOINT DETAILS
   D. TYPICAL STEPPED FOOTING
2. WS – DENOTES CONCRETE WALL STEP.
3. F-1 – DENOTES FOOTING MARK – SEE FOOTING SCHEDULE.
4. K.C.J. – DENOTES KEYED CONSTR. JOINT – SEE STANDARD DETAIL.
5. C.J. – DENOTES CONTROL JOINT – SEE STANDARD DETAIL.
6. F------S – DENOTES FOOTING STEP, SEE DETAIL TYPICAL.
7. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL FOR ALL DIMENSIONS, SLAB SLOPES & DEPRESSIONS NOT NOTED.
8. ALL SLABS ON GRADE ARE TO BE JOINTED AT NO MORE THAN 15'-0" EACH WAY USING JOINTS PER STANDARD DETAIL. IN ADDITION, NO SECTION OF CONCRETE SHALL HAVE AN ASPECT RATIO OF GREATER THAN 1 1/2:1. PROVIDE (2) #4 x 4'-0" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. ALL COLUMN ISOLATION JOINT CORNERS ARE TO BE INTERSECTED BY A SLAB JOINT OR REINFORCED WITH SLAB BARS PER ABOVE. SUBMIT COMPLETE JOINT LAYOUT PLAN TO THE ARCHITECT FOR PRIOR REVIEW.
9. ALL WOOD TO CONTACT w/ CONC. OR MASONRY TO BE P.T. OR REDWOOD TYP.
10. ALL FOUNDATION PL. ANCHOR BOLTS TO USE A MIN. 3x3x1/4 PL. WASHERS TYP.

ON STRUCTURAL PLANS AND DETAILS, THERE ARE SOME OPTIONS. ARCHITECTS PLEASE SPECIFY THE OPTIONS. IF G.C. OR OWNER HAS ANY CONCERNS ON THE OPTIONS, CONTACT ARCHITECTS TO CLARIFY THEM TYP. U.N.O.

CONTRACTOR PLEASE SEE ARCH. DWG. FOR PLUMBING LOCATION OF BATHTUB , TOILET. PLEASE OFFSET JOISTS WHERE OCCURS. USE DOUBLE JOISTS UNDER BATHTUB, KITCHEN ISLAND, AND OTHER HEAVY STUFFS.

FREE-STANDING RETAINING WALL, SEE DET. 7/S3.1 FOR SCHED.

CONCRETE POUR NOTES:

1. VERIFY FTG STEP LOCATIONS AND HEIGHT IN FIELD PRIOR TO FORMING FOOTINGS. MAKE FTG REBAR CONTINUOUS THROUGH FTGS WITH BENT BARS AT CORNERS. LAP BARS 40 BAR DIAMETERS AT SPLICES AND TIE.
2. DO NOT POUR ANY CONCRETE UNTIL THE FORMS ARE ADEQUATELY BOLSTERED AND SUPPORTED AND ALL REBAR IS IN PLACE AND SECURED.
3. DO NOT PERMIT FIN. GRADE TO COME CLOSER THAN 6" TO TOP OF CONCRETE.
4. FOR FOUNDATIONS REBAR INSPECTIONS FOR FOUNDATION WALLS OVER 8'-0", FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED AND APPROVED.
5. PROVIDE A U-FER GROUND DURING CONSTRUCTION OF FOOTING & FOUNDATION.
6. ALL FASTENERS (IE NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (IE SILL PLATES) SHALL BE HOT-DIPPED, ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER(MEET THE REQUIRMENTS OF IBC 2304.9.5.)
7. ALL L ANGLES FOR SUPPORTING VENEERS ARE HOT-DIPPED GALVANIZED.

FOOTING SCHEDULE

BASED ON SOIL BEARING = 1500 PSF
ARCH/CONTRACTOR VERIFY IT

MARK	SIZE	REINFORCING	REMARKS
F1	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	
F2	2'-6" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F3	3'-0" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F4	1'-4" x CONT. x 12"	(2) #4 CONT.	THICKENED SLAB
F5	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	THICKENED SLAB
F6	2'-6" SQ. x 12"	(2) #5 E.W.	
F7	3'-0" SQ. x 12"	(3) #5 E.W.	
F8	3'-6" SQ. x 12"	(4) #5 E.W.	
F9	4'-0" SQ. x 12"	(4) #5 E.W.	
F10	4'-6" SQ. x 12"	(5) #5 E.W.	
F11	5'-0" SQ. x 12"	(5) #5 E.W.	
F12	5'-6" SQ. x 13"	(6) #5 E.W.	
F13	6'-0" SQ. x 13"	(6) #5 E.W.	
F14	7'-0" SQ. x 14"	(6) #6 E.W.	
F15	8'-0" SQ. x 16"	(8) #7 E.W.	
F16	4'-0" x CONT. x 12"	(4) #5 CONT. #5x3'-6"@12" O.C.	
F15	9'-0" SQ. x 18"	(9) #8 E.W.	

ALL FLOOR JOISTS TO BE 11 7/8" TJI210 @ 16" O.C. TYPICAL U.N.O.

EPOXY BOLTS CALLED OUT ON PLAN ARE SIMPSON "SET" FOR CMU APPLICATION (ICC ESR1772) & HILTI HIT RE 500-SD EPOXY BOLTS FOR CONC. APPLICATIONS (ICC ES ESR 2322).
THE INSTALLING REQUIREMENT FOR ANCHOR BOLTS AND/OR REBAR DOWELS ARE AS FOLLOWED:
DIAMETER/DRILL DIA./EMBED. DEPTH/EDGE DIST./SPACING DIST.
1/2" / 5/8" / 4 1/4" / 1 3/4" / 6 3/8"
5/8" / 3/4" / 5" / 1 3/4" / 7 1/2"
3/4" / 7/8" / 6 3/4" / 1 3/4" / 10 1/8"

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LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
11/5/2017

NO.	REVISION	DATE

HIGHSTAR CABIN 3300
LOT #53
KAMAS CITY, UTAH
SE17424

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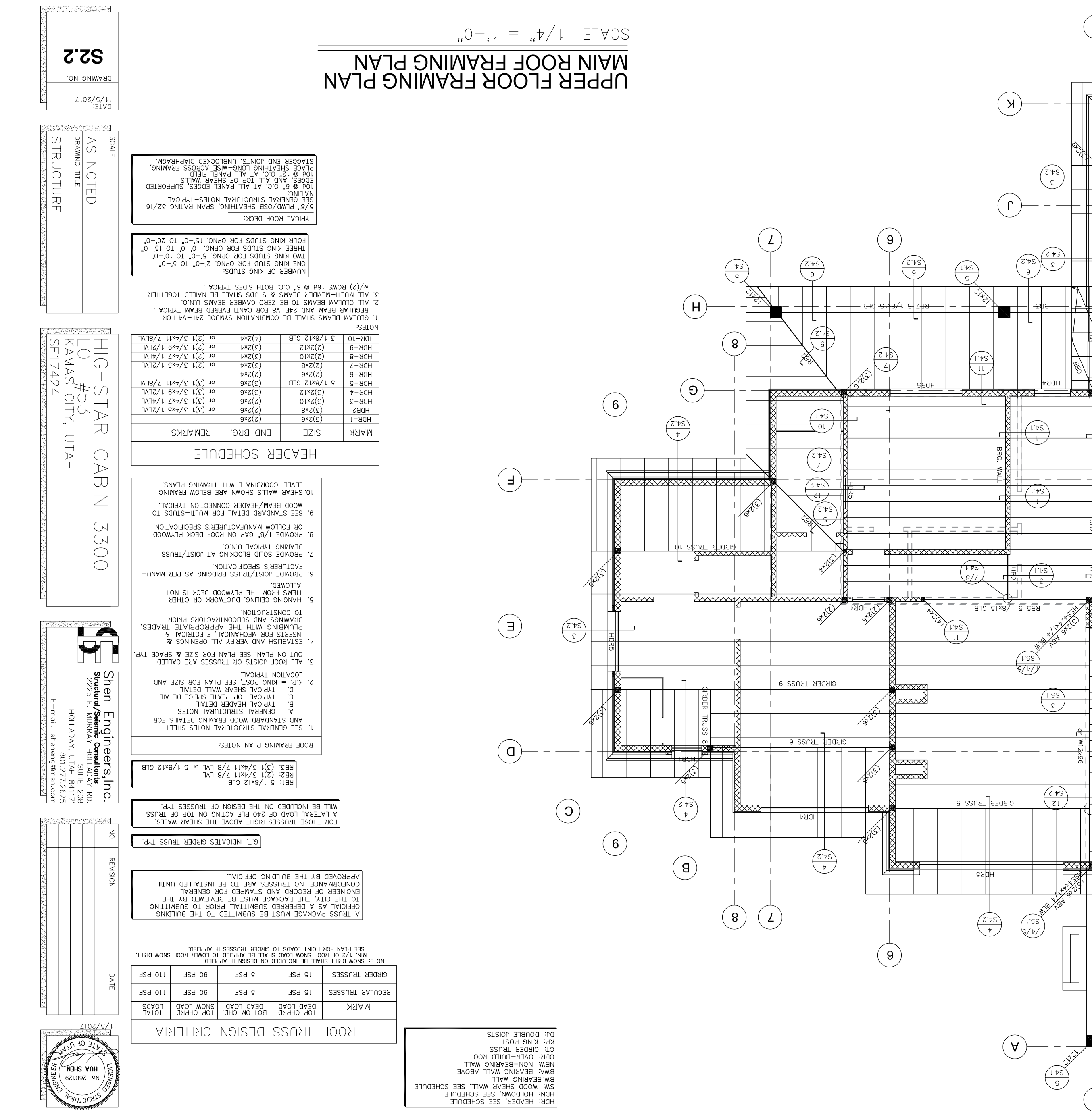

UPPER FLOOR FRAMING PLAN
MAIN ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"

HDR: HEADER, SEE SCHEDULE
HDN: HOLDOWN, SEE SCHEDULE
SW: WOOD SHEAR WALL, SEE SCHEDULE
BW: BEARING WALL
BWA: BEARING WALL ABOVE
NBW: NON-BEARING WALL
OBR: OVER-BUILD ROOF
GT: GIRDER TRUSS
KP: KING POST
DJ: DOUBLE JOISTS

ROOF TRUSS DESIGN CRITERIA

MARK	TOP CHPRD DEAD LOAD	BOTTOM CHD. DEAD LOAD	TOP CHPRD SNOW LOAD	TOTAL LOADS
REGULAR TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF
GIRDER TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF

NOTE: SNOW DRIFT SHALL BE INCLUDED ON DESIGN IF APPLIED
MIN. 1/2 OF ROOF SNOW LOAD SHALL BE APPLIED TO LOWER ROOF SNOW DRIFT.
SEE PLAN FOR POINT LOADS TO GIRDER TRUSSES IF APPLIED.

A TRUSS PACKAGE MUST BE SUBMITTED TO THE BUILDING OFFICIAL AS A DEFERRED SUBMITTAL. PRIOR TO SUBMITTING TO THE CITY, THE PACKAGE MUST BE REVIEWED BY THE ENGINEER OF RECORD AND STAMPED FOR GENERAL CONFORMANCE. NO TRUSSES ARE TO BE INSTALLED UNTIL APPROVED BY THE BUILDING OFFICIAL.

G.T. INDICATES GIRDER TRUSS TYP.

FOR THOSE TRUSSES RIGHT ABOVE THE SHEAR WALLS, A LATERAL LOAD OF 240 PLF ACTING ON TOP OF TRUSS WILL BE INCLUDED ON THE DESIGN OF TRUSSES TYP.

RB1: 5 1/8x12 GLB
RB2: (2)1 3/4x11 7/8 LVL
RB3: (3)1 3/4x11 7/8 LVL or 5 1/8x12 GLB

ROOF FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD WOOD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL TOP PLATE SPLICE DETAIL
   D. TYPICAL SHEAR WALL DETAIL
2. K.P. = KING POST, SEE PLAN FOR SIZE AND LOCATION TYPICAL.
3. ALL ROOF JOISTS OR TRUSSES ARE CALLED OUT ON PLAN. SEE PLAN FOR SIZE & SPACE TYP.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST/TRUSS BRIDGING AS PER MANU-FACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST/TRUSS BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON ROOF DECK PLYWOOD OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE STANDARD DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL.
10. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

HEADER SCHEDULE

MARK	SIZE	END BRG.	REMARKS
HDR-1	(3)2x6	(2)2x6	
HDR2	(3)2x8	(2)2x6	or (3)1 3/4x5 1/2LVL
HDR-3	(3)2x10	(2)2x6	or (3)1 3/4x7 1/4LVL
HDR-4	(3)2x12	(3)2x6	or (3)1 3/4x9 1/2LVL
HDR-5	5 1/8x12 GLB	(3)2x6	or (3)1 3/4x11 7/8LVL
HDR-6	(2)2x6	(2)2x4	
HDR-7	(2)2x8	(3)2x4	or (2)1 3/4x5 1/2LVL
HDR-8	(2)2x10	(3)2x4	or (2)1 3/4x7 1/4LVL
HDR-9	(2)2x12	(3)2x4	or (2)1 3/4x9 1/2LVL
HDR-10	3 1/8x12 GLB	(4)2x4	or (2)1 3/4x11 7/8LVL

NOTES:
1. GLULAM BEAMS SHALL BE COMBINATION SYMBOL 24F-V4 FOR REGULAR BEAM AND 24F-V8 FOR CANTILEVERED BEAM TYPICAL.
2. ALL GLULAM BEAMS TO BE ZERO CAMBER BEAMS U.N.O.
3. ALL MULTI-MEMBER BEAMS & STUDS SHALL BE NAILED TOGETHER w/(2) ROWS 16d @ 6" O.C. BOTH SIDES TYPICAL.

NUMBER OF KING STUDS:
ONE KING STUD FOR OPNG. 2'-0" TO 5'-0"
TWO KING STUDS FOR OPNG. 5'-0" TO 10'-0"
THREE KING STUDS FOR OPNG. 10'-0" TO 15'-0"
FOUR KING STUDS FOR OPNG. 15'-0" TO 20'-0"

TYPICAL ROOF DECK:
5/8" PLWD/OSB SHEATHING, SPAN RATING 32/16
SEE GENERAL STRUCTURAL NOTES-TYPICAL NAILING:
10d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
10d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

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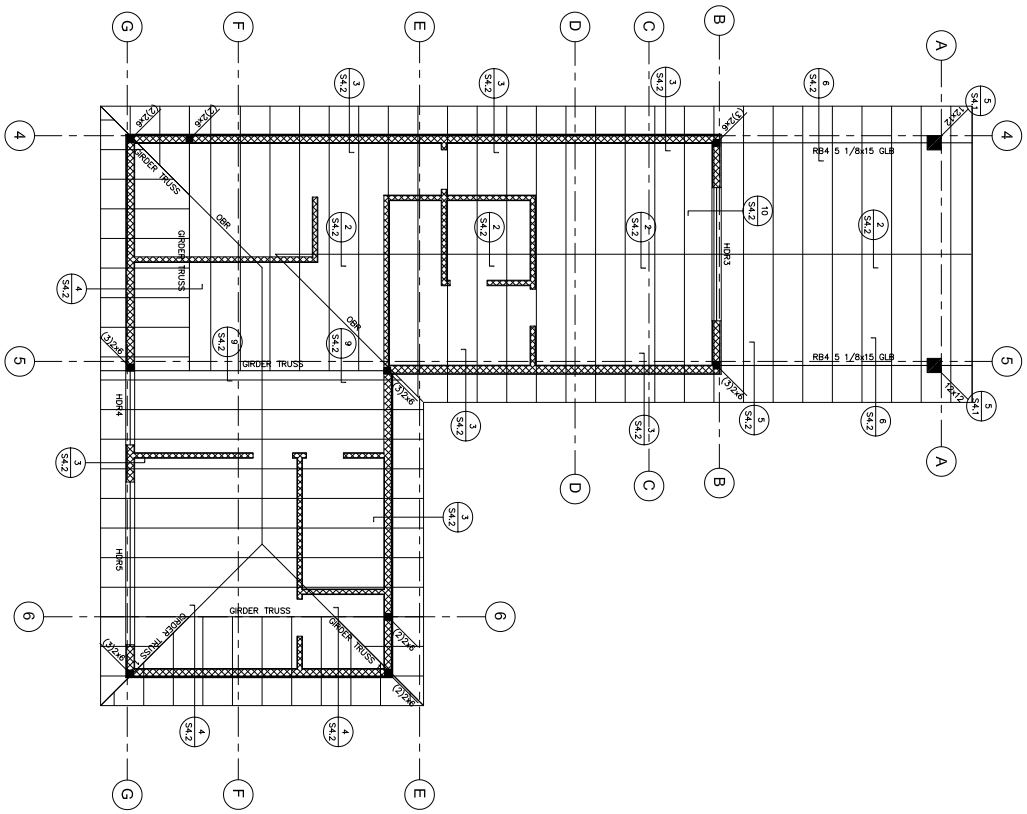

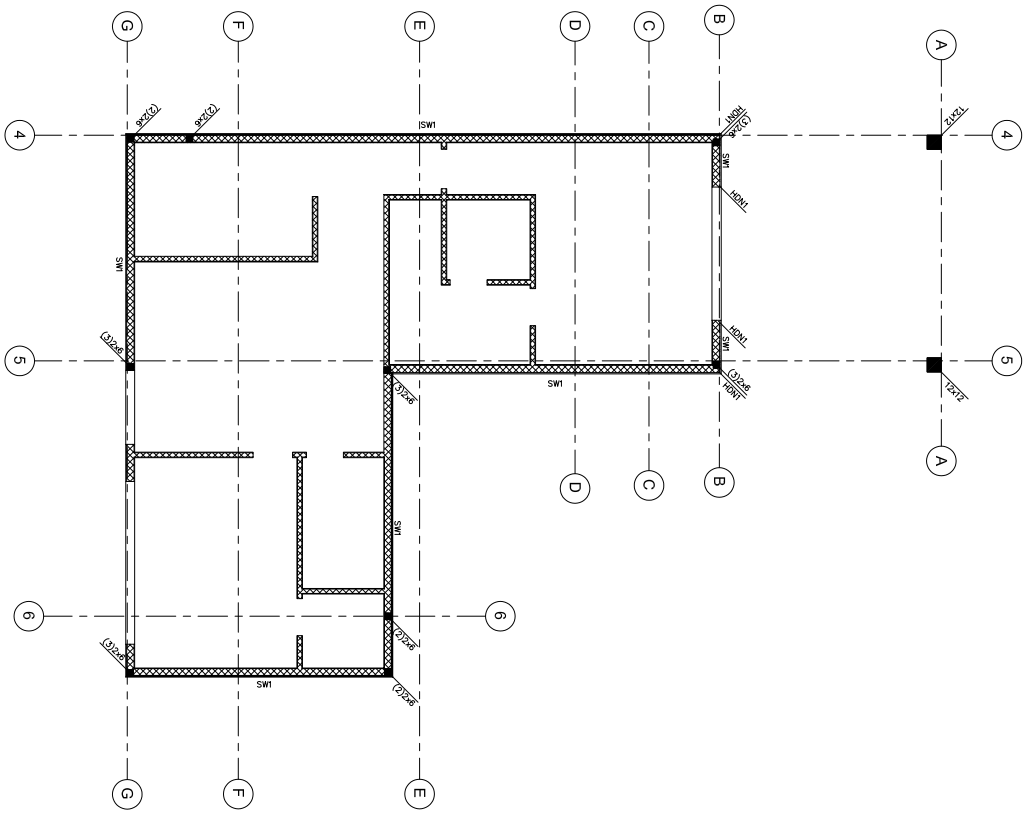

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HAN SHEN
STATE OF UTAH
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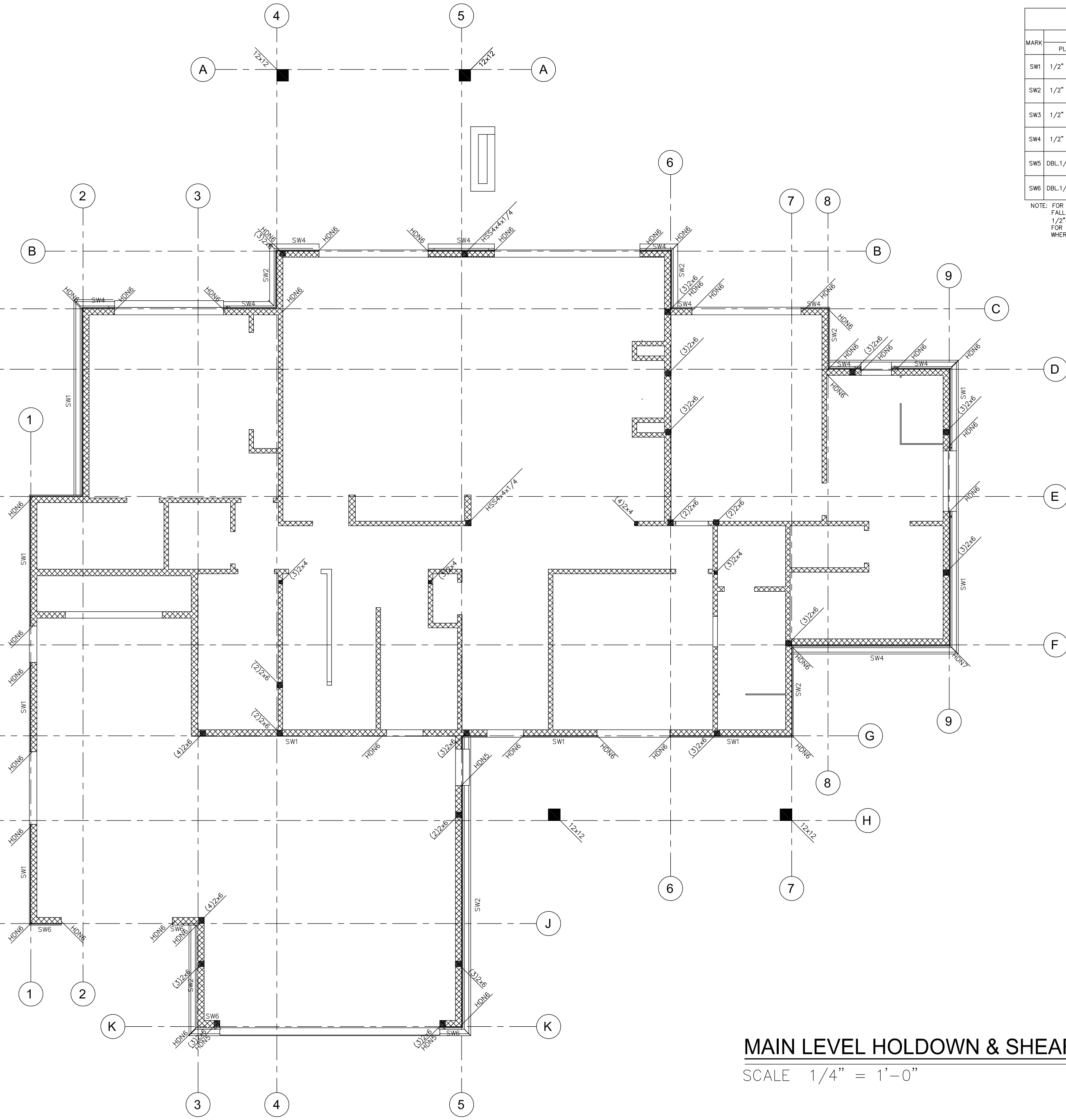

MAIN LEVEL HOLDOWN & SHEARWALL PLAN

SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	END STUD	ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B

(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"~ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"~ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"~ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"~ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"~ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"~ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"~ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"~ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"~ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"~ LAG BOLTS @ 12" O.C. E.S.

W INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS:
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ HEIGHT \ MARK	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

NOTES: 1. FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

NOTES: FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

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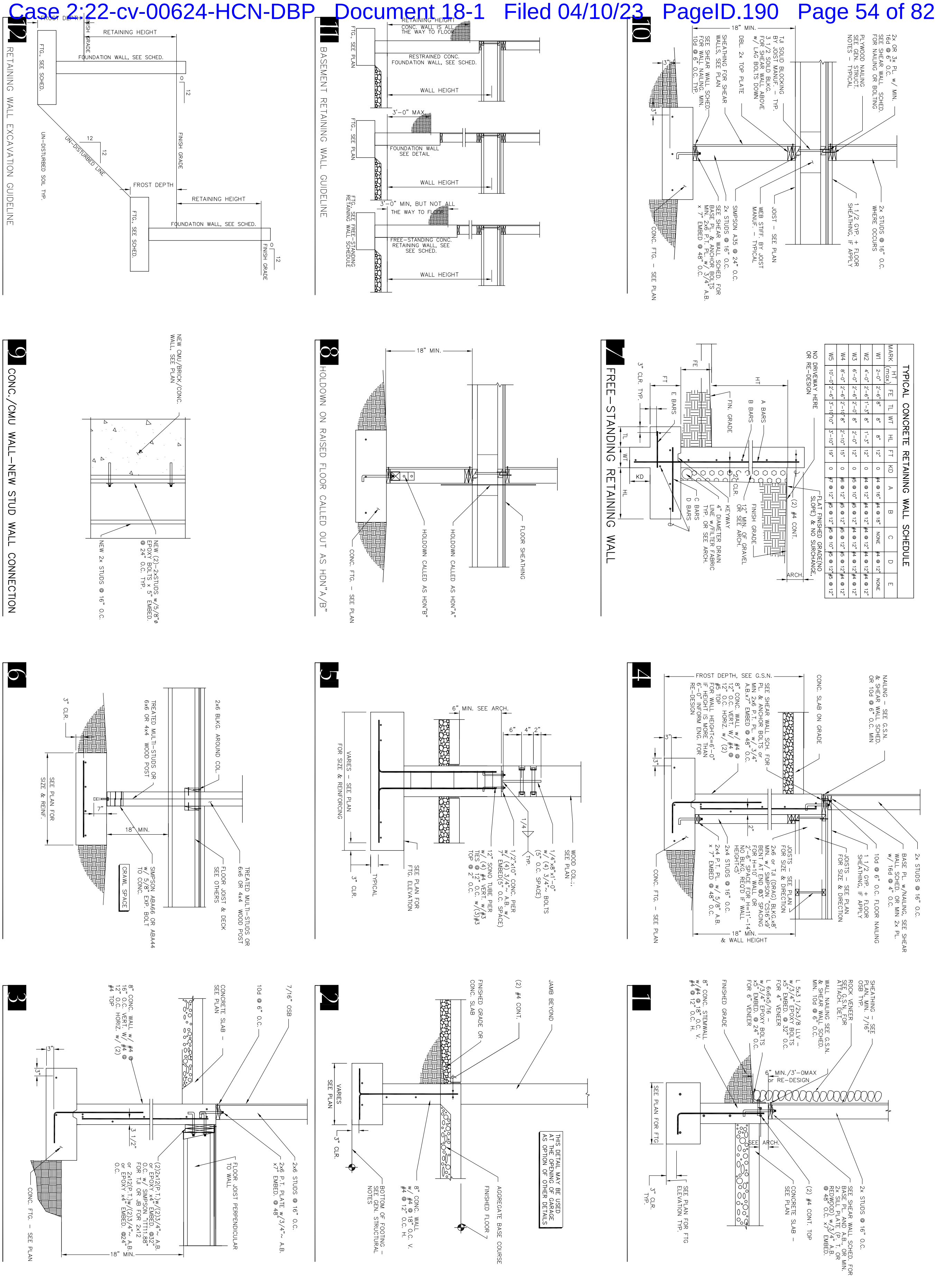

TYPICAL CONCRETE RETAINING WALL SCHEDULE

MARK	HT (max)	FE	TL	WT	HL	FT	KD	A	B	C	D	E
W1	2'-0"	2'-6"	8"	8"	8"	12"	0	#4 @ 16"	#4 @ 18"	NONE	#4 @ 12"	NONE
W2	4'-0"	2'-6"	1'-3"	8"	1'-3"	12"	0	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W3	6'-0"	2'-6"	2'-0"	8"	2'-0"	12"	0	#5 @ 10"	#5 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W4	8'-0"	2'-6"	2'-10"	8"	2'-10"	15"	0	#6 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 12"
W5	10'-0"	2'-6"	3'-10"	10"	3'-10"	19"	0	#7 @ 12"	#5 @ 12"	#5 @ 10"	#5 @ 12"	#5 @ 12"

NO DRIVEWAY HERE OR RE-DESIGN

DATE: 11/5/2017
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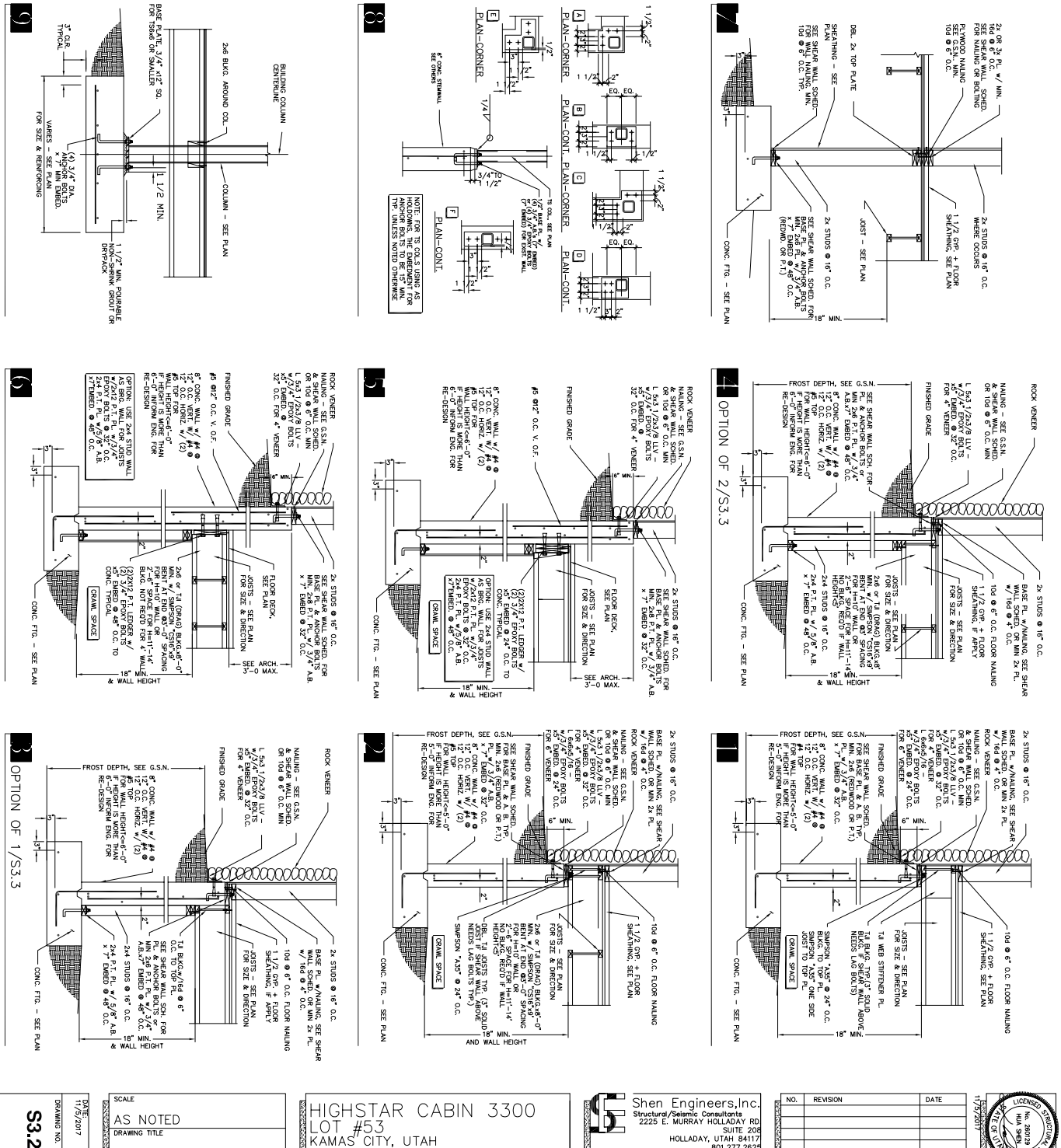

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NO.	REVISION	DATE

LICENSED STRUCTURAL ENGINEER
No. 280129
RAM SHEN
STATE OF UTAH
11/5/2017

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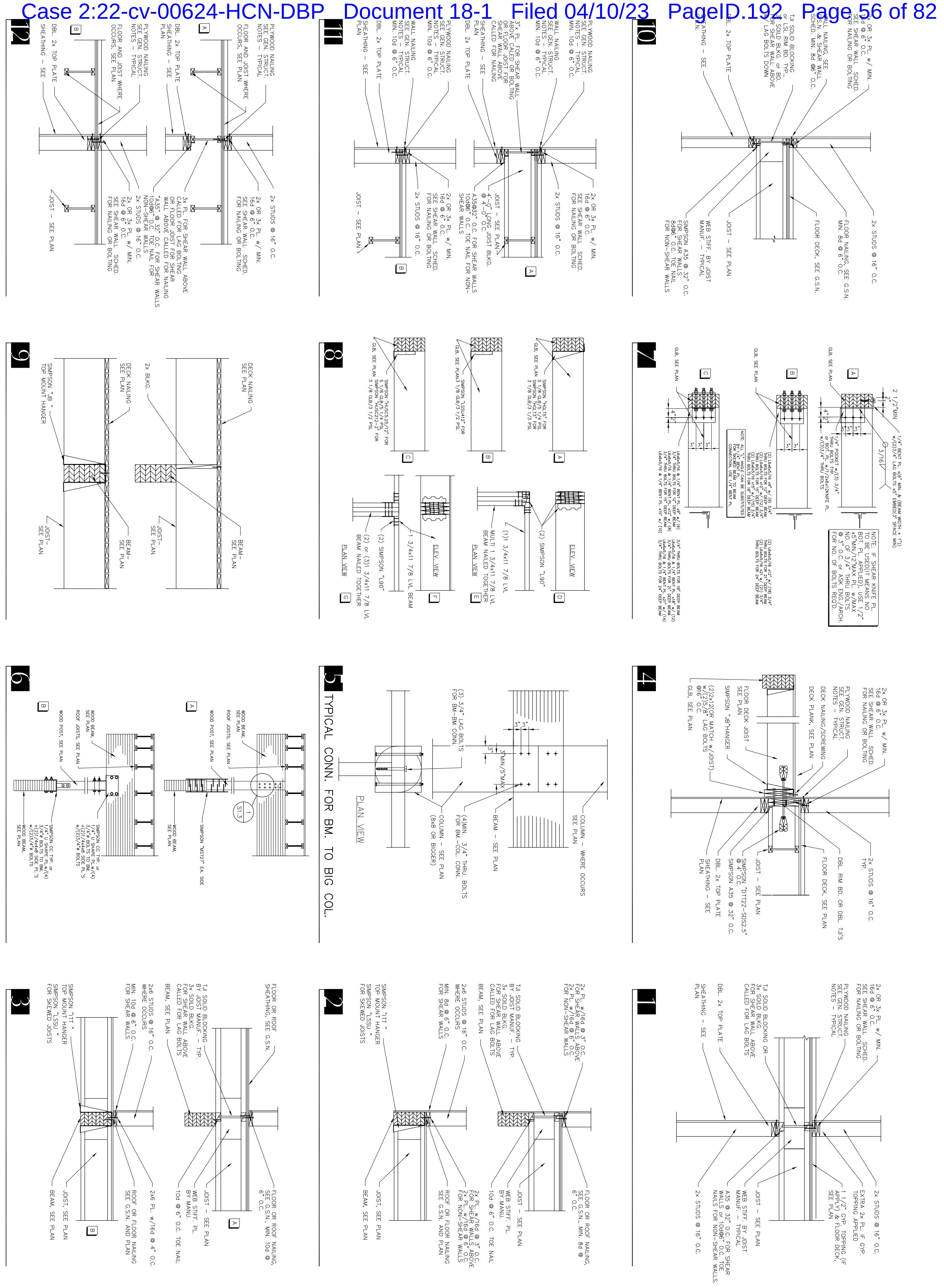

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HIGHSTAR CABIN 3300
LOT #53
KAMAS CITY, UTAH
SF17424

SCALE
AS NOTED

DRAWING TITLE
STRUCTURE

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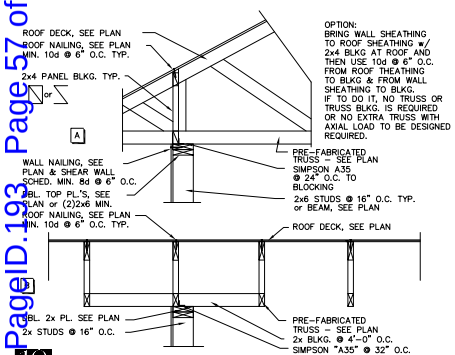
DRAWING NO.
S4.1



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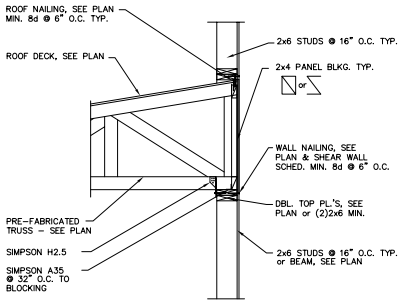

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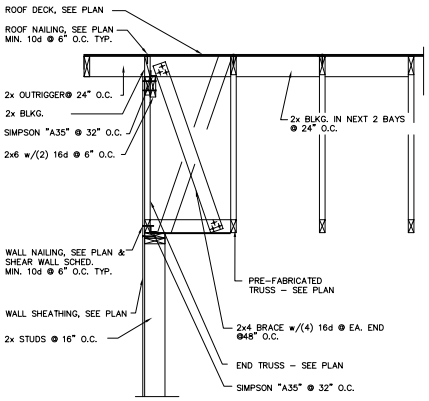

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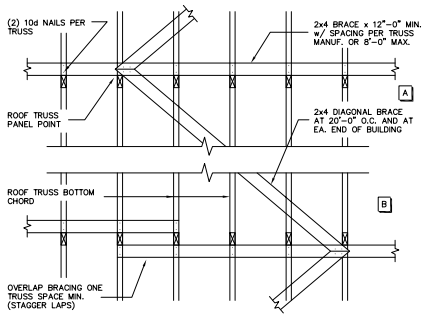

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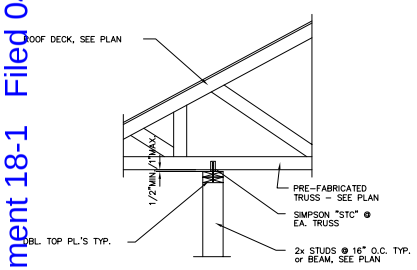

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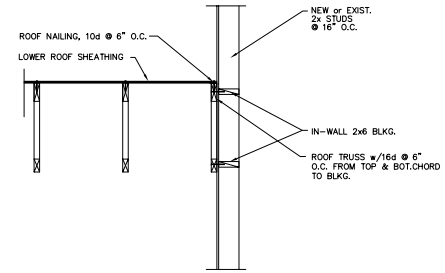

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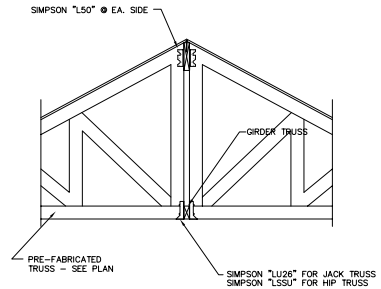

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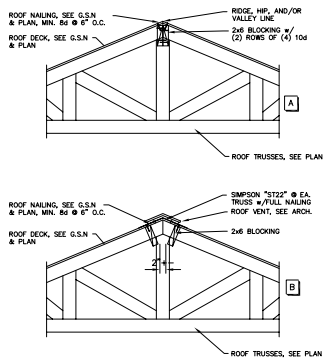

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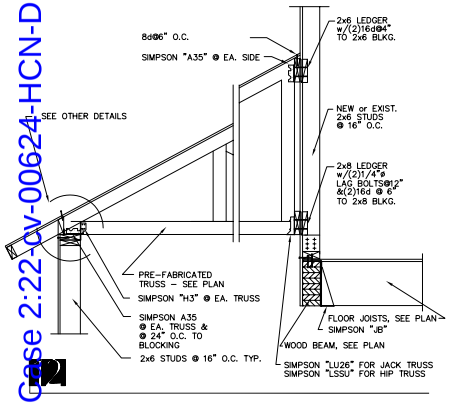

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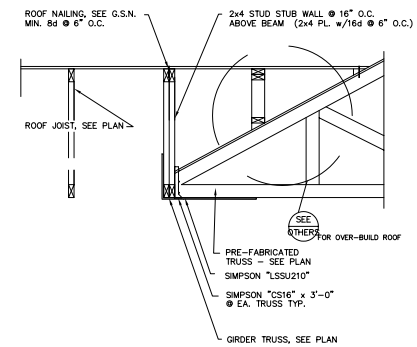

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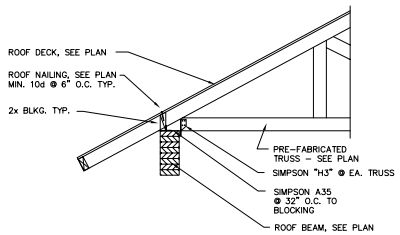

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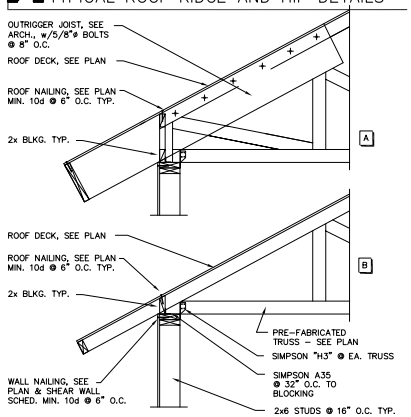

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SCALE: AS NOTED
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DATE: 11/5/2017
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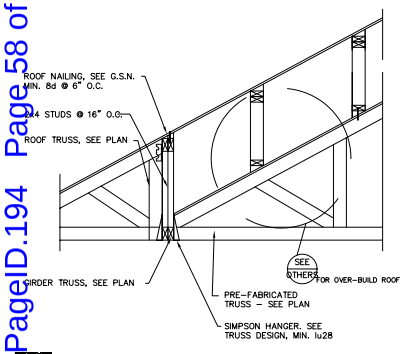
LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
11/5/2017

SHEN000041



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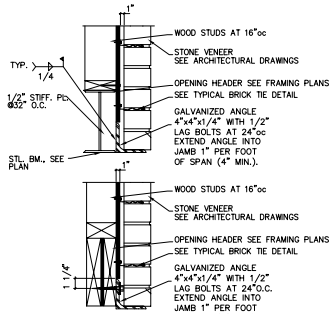

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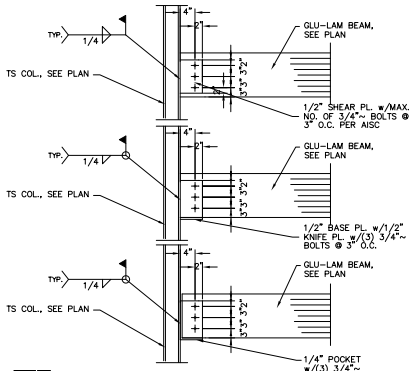

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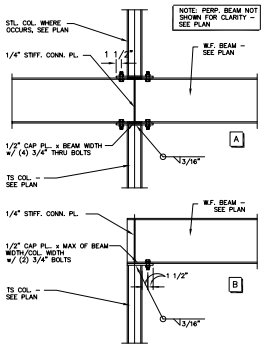

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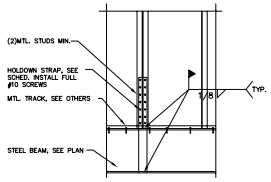
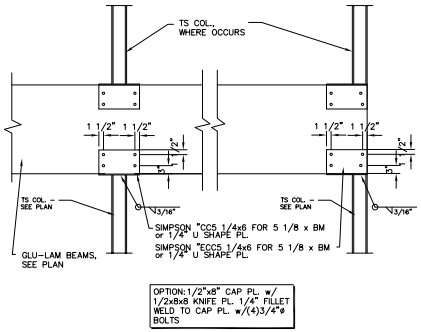
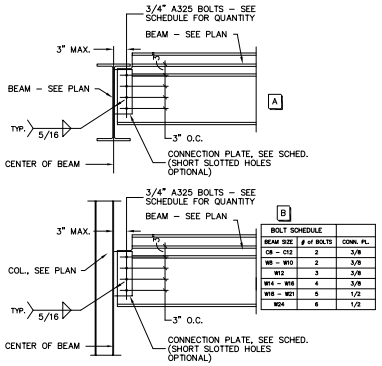


8 HOLDOWNS AT FLOOR TO FLOOR



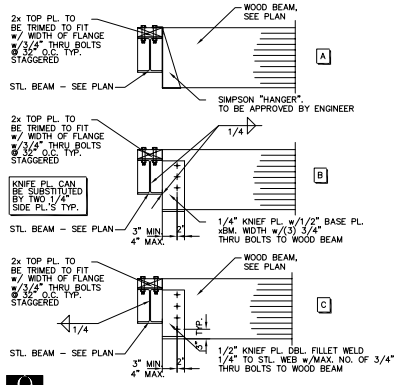
5 TYPICAL GLB TO TS COL. CONN.



BOLT SCHEDULE

BEAM SIZE	# of BOLTS	CONN. PL.
C8 - C12	2	3/8
W8 - W10	2	3/8
W12	3	3/8
W14 - W18	4	3/8
W18 - W21	5	1/2
W24	6	1/2

2 TYPICAL STEEL BEAM - BEAM CONN.



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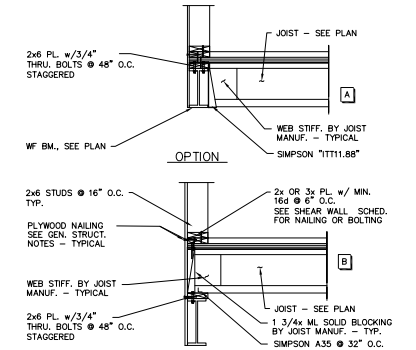

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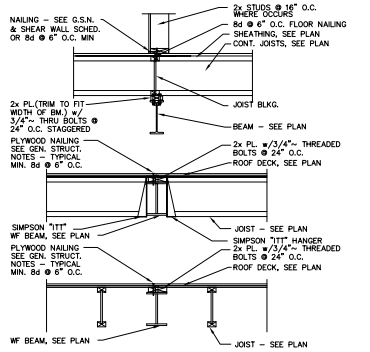

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DRAWING NO. **S5.1**

EXHIBIT E

GENERAL STRUCTURAL NOTES:

I. GENERAL:

A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS SHALL BE TYPICAL AND APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OR SHOWN OTHERWISE.
B. CONTRACTOR SHALL COMPARE ALL DIMENSIONS AND CONDITIONS ON CONTRACT DOCUMENTS AND AT THE SITE. ANY OMISSION OR CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IN CASE OF ANY CONFLICT FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY ARCHITECT/ENGINEER.
C. SEE THE ARCHITECTURAL DRAWINGS FOR DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, RECESSES, DEPRESSIONS, ETC.
D. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL PORTIONS OF THE BUILDING UNTIL THE ENTIRE STRUCTURE OF THE BUILDING IS COMPLETE.
E. OBSERVATION VISITS TO THE SITE BY STRUCTURAL ENGINEER'S FIELD REPRESENTATIVES SHALL NOT BE CONSTRUED AS INSPECTION OR APPROVAL OF CONSTRUCTION.
F. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN UTAH.

II. DESIGN CRITERIA:

A. BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE (IBC) W/ AMENDMENTS
B. LOADINGS:
1. ROOF SNOW LOAD = 90 PSF + SNOW DRIFT PER IBC
2. TYPICAL FLOOR LIVE LOAD = 40 PSF
3. WIND LOAD - 115 MPH ZONE - EXPOSURE C
4. SEISMIC DESIGN DATA: SDC-D2, Ss=0.98,S1=0.300,I=1,R=6.5, Fa=1.2, WOOD SHEAR WALL SYSTEM, V=0.102, IRREGULARITY=1.0, SITE CLASS: D, EQUIVALENT LATERAL FORCE PROCEDURE

C. FOUNDATION:
1. ALL EXTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 36" BELOW LOWEST ADJACENT FINISH FLOOR OR FINISH GRADE ONTO UNDISTURBED EXISTING SUBSOILS HAVING A MINIMUM NET BEARING CAPACITY OF 1500 PSF. ALL INTERIOR FOOTINGS ARE TO BE FOUNDED AT NOT LESS THAN 1'-3" BELOW LOWEST ADJACENT FINISH FLOOR ONTO SUBSOILS.

III. CONCRETE:

A. ALL MATERIALS SHALL COMPLY WITH ACI 318 AND ACI 347 PUBLICATIONS AND APPLICABLE ASTM PUBLICATIONS.
B. CONCRETE MATERIAL PROPERTIES: 28-DAY COMPRESSIVE STRENGTHS ARE TO BE 3000 PSI TYPICAL UNLESS NOTED OTHERWISE. DESIGN BASED ON 2500 PSI.
C. CAST IN PLACE CONCRETE:
1. SPACING OF CONSTRUCTION JOINTS OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 40 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
2. PROVIDE EXTRA REINFORCING AROUND ALL OPENINGS EXCEEDING 24 INCHES SQUARE OR ROUND IN ALL SLABS AND WALLS EQUAL TO TWO #5 BARS ON FOUR SIDES AND EXTEND TWO FEET BEYOND THE OPENING.
3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
4. PROVIDE CLASS B LAP SPLICES FOR ALL REINFORCING UNLESS NOTED OTHERWISE.
5. PROVIDE ISOLATION JOINTS AROUND ALL COLUMNS AT ALL EXPOSED SLAB ON GRADE AREAS.

IV. REINFORCING STEEL:

A. ALL BARS #4 AND LARGER TO BE ASTM A 615, GRADE 60. ALL #2 AND #3 BARS TO BE ASTM A 615, GRADE 40. DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI-318, LATEST ADOPTION.
B. ALL REINFORCING STEEL SHALL BE BENT, DETAILED AND CHAIRED AS PER "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES".
C. WELDED WIRE FABRIC TO BE IN ACCORDANCE WITH ASTM A 185.
D. ALL BARS INDICATED ON THE PLANS TO BE WELDED SHALL CONFORM TO ASTM A706 (GRADE 60).
E. CONCRETE COVER REQUIREMENTS FOR DEFORMED BAR REINFORCING STEEL SHALL COMPLY WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCING CONCRETE".
1. CAST-IN-PLACE CONCRETE:
a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
b) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER: 2"
#5 BARS AND SMALLER: 1-1/2"
c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS JOISTS: #11 BARS OR SMALLER: 3/4"
BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1-1/2"
F. DETAILING: SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE ONLY AFTER REVIEW AND APPROVAL. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
1. LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
30 BAR DIAMETER FOR #3 AND #4 BARS
40 BAR DIAMETER FOR #5 THROUGH #8 BARS
DO NOT SPLICE STIRRUPS AND TIES
DO NOT SPLICE VERTICAL BARS IN RETAINING WALLS UNLESS SPECIFICALLY SHOWN.
2. ALL EMBEDMENTS AND DOWELS SHALL BE SECURELY TIED TO FORMWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

V. STRUCTURAL AND MISCELLANEOUS STEEL:
A. MATERIAL PROPERTIES:
1. ALL SHAPES, PLATES, ANGLES, AND CHANNELS TO BE ASTM A-36 UNLESS NOTED OTHERWISE.
2. ALL WF SHAPES WEIGHING 84 POUNDS PER LINEAR FOOT OR LESS TO BE ASTM A 572, GRADE 50. ALL WF SHAPES WEIGHING MORE THAN 84 POUNDS PER LINEAR FOOT TO BE ASTM A 572, GRADE 36.
3. SQUARE OR RECTANGULAR TUBES TO BE ASTM A 500, GRADE B, F_y = 46 KSI.
4. ALL STEEL TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS, LATEST ADOPTION.
B. WELDING:
1. FOR STRUCTURAL STEEL TO BE IN ACCORDANCE WITH A.W.S. REQUIREMENTS FOR E70XX ELECTRODES.
C. BOLTS:
1. ALL BOLTS TO BE 3/4" DIAMETER ASTM A 325-N UNLESS NOTED OTHERWISE.
2. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.
3. ANCHOR BOLTS SHALL BE ASTM A 307 OR A 36.

VI. WOOD:
A. DIMENSIONAL LUMBER: ALL TO BE GRADE STAMPED PER W.C.L.B. RULES.
1. ALL JOISTS, BEAMS, PLATES, HEADERS AND OTHER LUMBER TO BE D.FIR/LARCH #2 UNLESS OTHERWISE NOTED.
2. 2 X 4 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
3. 2X 6 SUB-PURLINS TO BE D.FIR/LARCH NO.1.
4. PURLINS TO BE D.FIR DENSE #1.
5. 4X AND 6X POSTS TO BE D.FIR/LARCH NO.1.
6. WALL STUDS TO BE D.FIR/LARCH #2 GRADE OR BETTER.
B. WOOD DECKING: FLOOR DECKING SHALL BE COMMERCIAL 2 X 6 (NOMINAL TONGUE AND GROOVE DECKING, HEM-FIR OR BETTER WITH A REPETITIVE Fb OF 1450 PSI MINIMUM.
C. GLU-LAMS:
1. TO BE GRADE STAMPED PER A.I.T.C., D.FIR/LARCH COMBINATION 24F-V8 FOR CONTINUOUS SPANS AND D.FIR/LARCH COMBINATION 24F-V4 FOR SIMPLE SPANS. GLUED WITH WATERPROOF GLUE.
D. PLYWOOD:
1. ROOF SHEATHING TO BE STD 5/8" OSB OR C-D WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
2. FLOOR SHEATHING TO BE STD 3/4" OSB OR C-C T&G WITH EXTERIOR GLUE, IDENTIFICATION INDEX 40/20. NAIL WITH 8d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 8d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE.
3. EXTERIOR WALLS TO BE STD 7/16" OSB OR 1/2" C-C WITH EXTERIOR GLUE. NAIL WITH 10d NAILS AT 6" O.C. AT ALL EDGE SUPPORTS AND WITH 10d NAILS AT 12" O.C. AT ALL INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING AND NAILING.
E. PLYWOOD WEB I JOISTS:
1. TO BE DESIGNED, DETAILED AND FABRICATED BY TRUS-JOIST AND HAVE THE APPROVAL OF ICBO.
2. JOISTS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
3. DESIGN JOISTS FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
F. SPECIAL TREATMENTS (AMERICAN WOOD PRESERVERS INSTITUTE STANDARDS):
1. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL: PRESSURE TREAT WITH WOLMAN CCA PRESERVATIVE OR EQUAL AS APPROVED BY THE ARCHITECT.
2. FIRE RETARDANT: PRESSURE TREAT WITH DRICON OR EQUAL AS APPROVED THE ARCHITECT.
G. WOOD NAILING SCHEDULE:
1. JOIST TO SILL OR GIRDER, TOENAIL 3-8d
2. BRIDGING TO JOIST, TOENAIL EACH END 2-8d
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST FACE NAIL 2-8d
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST, FACE NAIL 3-8d
5. SUBFLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL 2-16d
6. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL 2-16d
7. TOP PLATE TO STUD, END NAIL 2-16d
8. STUD TO SOLE PLATE TOENAIL 4-8d OR FACE NAIL 2-16d
9. DOUBLE STUDS, FACE NAIL 16d @ 24" o.c.
10. DOUBLED TOP PLATES, FACE NAIL 16d @ 16" O.C.
11. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL 2-16d
12. CONTINUOUS HEADER, 2 PIECES 16d @ 16"O.C. ALONG 2 EDGES
13. CEILING JOISTS TO PLATE, TOENAIL 3-8d
14. CONTINUOUS HEADER TO STUD, TOENAIL 4-8d
15. CEILING JOIST, LAPS OVER PARTITIONS FACE NAIL 3-16d
16. CEILING JOIST TO PARALLEL RAFTERS FACE NAIL 3-16d
17. RAFTER TO PLATE, TOENAIL 4-8d
18. BRACE TO EACH STUD AND PLATE, FACE NAIL 2-8d
19. 1"X8" SHEATHING OR LESS TO EACH BEARING, FACE NAIL 2-8d
20. WIDER THAN 1"X8" SHEATHING TO EACH BEARING, FACE NAIL 3-8d
21. BUILT UP CORNER STUDS 16d @ 24" O.C.
22. BUILT-UP GIRDERS AND BEAMS 20d @ 32"O.C. AT TOP AND BOTTOM AND STAGGERED 2-20d AT EACH END & SPLICE
23. PLANKS 2-16d AT EACH BEARING

VII. MISCELLANEOUS:
A. GYPSUM WALLBOARD: FOR SHEAR WALLS TO BE STANDARD 1/2" GYPSUM WALLBOARD. NAIL WITH 5D COOLER NAILS AT 7" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
B. STUCCO: FOR SHEAR WALLS TO BE STANDARD 7/8" PORTLAND CEMENT PLASTER ON EXPANDED METAL OR WOVEN WIRE LATH. NAIL WITH NO.11 GAGE, 1 1/2" LONG, 7/16" HEAD NAILS OR NO.16 GAGE STAPLES WITH 7/8" LONG LEGS AT 6" O.C. TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.

VIII. SPECIAL INSPECTION: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.
A. EPOXY BOLTS IN TENSION IF APPLY.
B. FIELD WELDING AND MOMENT CONNECTION WELDING.

IX. BRICK AND/OR STONE VENEER NOTES:
1. TO WOOD STUD WALLS: VENEER SHALL BE ATTACHED TO THE WOOD STUDS WITH A 1" MINIMUM WIDE X 22 GAUGE, GALVANIZED, CORRUGATED BRICK TIE SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER. CORRUGATED METAL TIES SHALL FORM A 180-DEGREE HOOK AROUND THE NO. 9 GAUGE WIRE USED AS HORIZONTAL JOINT REINFORCEMENT IN THE VENEER. SPOT BEDDING AT THE CORRUGATED TIES SHALL BE OF CEMENT MORTAR ENTIRELY SURROUNDING THE TIES. ATTACH TIES TO STUDS WITH A MINIMUM #10 X 1 1/2" WOOD SCREW.
2. TO CONCRETE WALLS: 22 GAUGE GALVANIZED DOVETAIL SLOTS SHALL BE INSTALLED VERTICALLY IN CONCRETE AT 16" O.C. VENEER SHALL BE ATTACHED TO THE CONCRETE WITH 1" X 22 GAUGE, CORRUGATED, GALVANIZED DOVETAIL BRICK ANCHORS OR 3/16" DIAMETER GALVANIZED DOVETAIL TRIANGLE WIRES SPACED AT A MAXIMUM OF 16" O.C. IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS. ANCHOR TIES SHALL EXTEND TO A NO. 9 GAUGE HORIZONTAL JOINT REINFORCEMENT WIRE IN THE VENEER WHICH SHALL BE CONTINUOUS AND SHALL BE PLACED AT 16" O.C. MAXIMUM AT THE CENTER OF THE VENEER.
3. OTHER METHODS OF ATTACHMENT MAY BE USED AFTER WRITTEN ACCEPTANCE BY THE ARCHITECT AND STRUCTURAL ENGINEER.

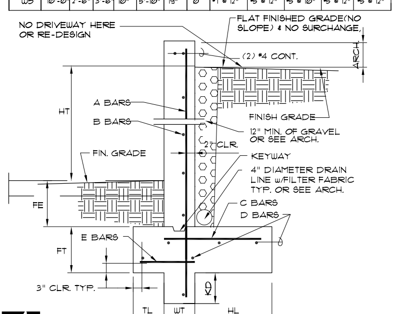
X. PREFABRICATED WOOD TRUSSES:
1. TO BE "GANG-NAIL" OR "ALPINE" OR APPROVED EQUAL DESIGNED, DETAILED AND FABRICATED IN ACCORDANCE WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING" AND THE TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION.
2. LOADING:
a) TRUSS TOP CHORDS ARE TO BE DESIGNED FOR THE LIVE LOADS LISTED ABOVE AND FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 15 PSF.
b) TRUSS BOTTOM CHORDS ARE TO BE DESIGNED FOR A SUPERIMPOSED DEAD LOAD OF NOT LESS THAN 5 PSF.
c) DESIGN TRUSSES FOR TWICE THE WEIGHT OF MECHANICAL UNITS INDICATED ON THE PLANS IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION TECHNICAL NOTE #9. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL UNITS REQUIRED.
d) FOR TRUSSES MANUFACTURED SUCH THAT ALL CHORDS ARE MSR LUMBER AND ALL CHORD SPLICES ARE FINGER JOINTS AND PROOF LOADED IN ACCORDANCE WITH U.B.C STANDARDS, THE ALLOWABLE STRESS INCREASE FOR DURATION OF LOAD MAY BE THE MAXIMUM PERMITTED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENING", LATEST ADOPTION.
3. SUBMITTALS:
a) COMPLETE DESIGN CALCULATIONS SHALL BE FURNISHED TO THE ENGINEER FOR EACH TRUSS. CALCULATIONS MUST BE PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF UTAH.
b) SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
c) THE TRUSS MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE TRUSS QUALITY IS IN CONFORMANCE TO "QUALITY STANDARD FOR METAL PLATE CONNECTED WOOD TRUSSES", LATEST ADOPTION, PUBLISHED BY THE TRUSS PLATE INSTITUTE.
d) THE TRUSS MANUFACTURER SHALL HAVE A QUALITY ASSURANCE PROGRAM IN ACCORDANCE WITH SECTION 25-1739 OF IBC STANDARD NO. 25-17 AND PROVIDE WRITTEN CERTIFICATION OF COMPLIANCE FROM THE INDEPENDENT TESTING AGENCY.
4. GENERAL:
a) ALL TRUSSES AND RELATED BRACING SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS.
b) LUMBER USED FOR CHORDS AND WEBS SHALL HAVE A MAXIMUM MOISTURE CONTENT BELOW 19% AT THE TIME OF FABRICATION.
c) ALL TRUSS MEMBERS SHALL MEET OR EXCEED VISUAL REQUIREMENTS FOR NO. 2 GRADE. NO WANE SHALL BE PERMITTED IN THE CONNECTION AREA.
d) DESIGN LATERAL RESISTANCE VALUES FOR TRUSS PLATES AND METAL WEBS SHALL BE 80% OF ICBO ALLOWABLE LOAD VALUES.
e) THE HANKINSON FORMULA OR STRAIGHT LINE INTERPOLATION SHALL BE USED TO DETERMINE LATERAL RESISTANCE VALUES FOR PLATE TO WOOD GRAIN ANGLES BETWEEN 0 AND 90 DEGREES.
f) AT CHORD SPLICE LOCATIONS, MAXIMUM TENSION FORCES SHALL BE AS FOLLOWS:

PLATE GAGE	2X4	2X6
20	3500 #	5000 #
18	4800 #	7000 #
16	6000 #	9000 #

g) THE AXIAL FORCE FOR A 2X4 WEB SHALL NOT EXCEED 3500 LBS.
h) TRUSS PLATES SHALL BE SIZED SO THAT THEY CAN BE CENTERED BOTH HORIZONTALLY AND VERTICALLY ON THE JOINT UNLESS THE CHORD DEPTH OR THE TRUSS GEOMETRY PROHIBITS SUCH PLACEMENT.
i) EVERY TRUSS PLATE SHALL BE FULLY EMBEDDED INTO THE UNDERLYING WOOD ACROSS THE ENTIRE CONTACT AREA.
j) ALL TRUSSES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "HANDLING AND ERECTING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE. TEMPORARY BRACING SHALL BE INSTALLED DURING ERECTION AS REQUIRED BY THE LATEST EDITION OF "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS", PUBLISHED BY THE TRUSS PLATE INSTITUTE.

TYPICAL CONCRETE RETAINING WALL SCHEDULE

MARK	HT (max)	FE	TL	WT	HL	FT	KD	A	B	C	D	E
W1	2-0"	2'-6"	8"	8"	8"	12"	0	#4 @ 16"	#4 @ 18"	NONE	#4 @ 12"	NONE
W2	4'-0"	2'-6"	1'-3"	8"	1'-3"	12"	0	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W3	6'-0"	2'-6"	2'-0"	8"	2'-0"	12"	0	#5 @ 10"	#5 @ 12"	#4 @ 12"	#4 @ 12"	#4 @ 12"
W4	8'-0"	2'-6"	3'-0"	8"	4'-4"	15"	0	#6 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 12"
W5	10'-0"	2'-6"	3'-6"	10"	5'-10"	19"	0	#7 @ 12"	#5 @ 12"	#5 @ 10"	#5 @ 12"	#5 @ 12"



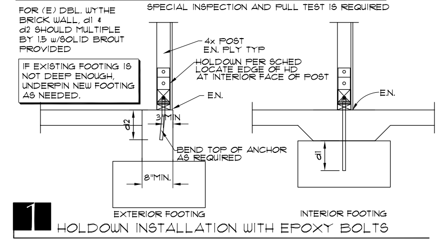
4 FREE-STANDING RETAINING WALL

HOLDOWN ALTERNATES w/ SIMPSON "SET-XP" - ESR2508					
HOLDOWNS CALLED OUT ON PLAN	SIMPSON HOLDOWNS	NEW ANCHORS SIMPSON "SET-XP"	d1*	d2*	d2 @ CORNER
HDN5	HDU2	5/8"φ	6"	6"	10"
HDN6	HDU5	5/8"φ	6"	8"	14"
HDN7	HDU8	7/8"φ	8"	14"	
HDN8	HDU11	1"φ	8"	16"	
HDN9	HDU14	1"φ	12"	20"	

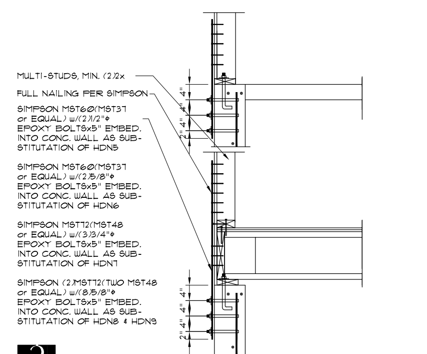
SPECIAL INSPECTION AND PULL TEST IS REQUIRED

FOR (E) DBL. WYTHE BRICK WALL, d1 & d2 SHOULD MULTIPLE BY 1.5 w/SOLID BROUT PROVIDED

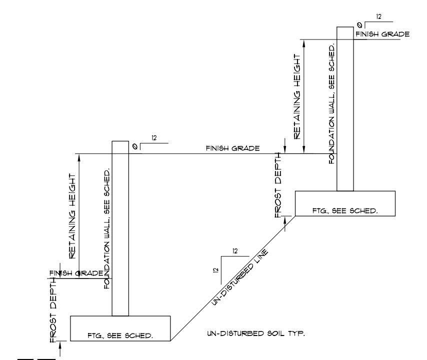
IF EXISTING FOOTING IS NOT DEEP ENOUGH, UNDERPIN NEW FOOTING AS NEEDED.



1 HOLDOWN INSTALLATION WITH EPOXY BOLTS



2 HOLDOWN INSTALLATION WITH EPOXY BOLTS



3 RETAINING WALL EXCAVATION GUIDELINE

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
10/7/2019

NO.	REVISION	DATE

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NEW CABIN
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976 N. STATE RD. 32, KAMAS, UTAH
SE19369

SCALE
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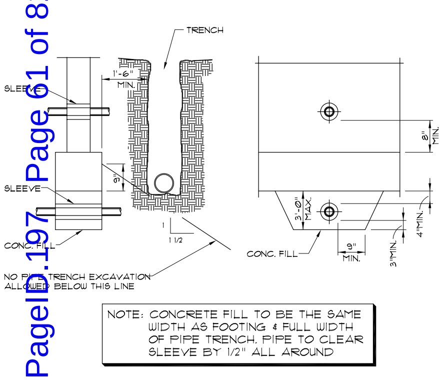
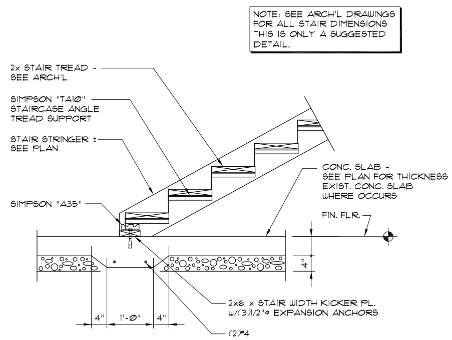
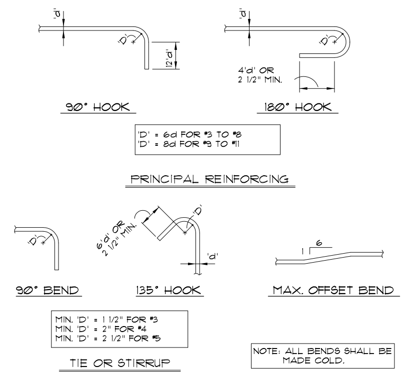
S1.1



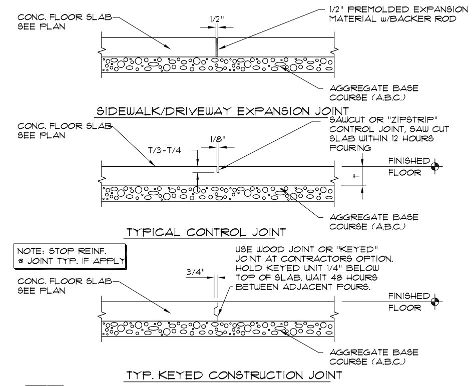
10 PIPES AT CONCRETE FOOTING



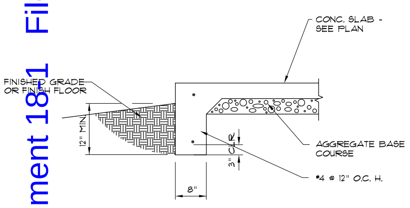
7 SUGGESTED WOOD STAIR-CONC. SLAB CONN.



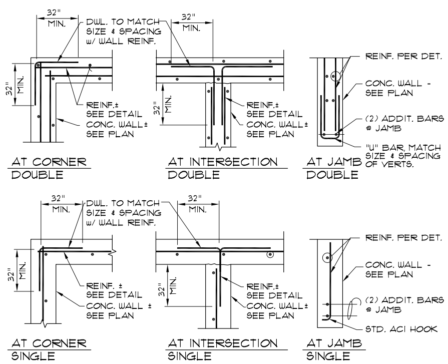
4 TYPICAL REINFORCING BAR BENDS



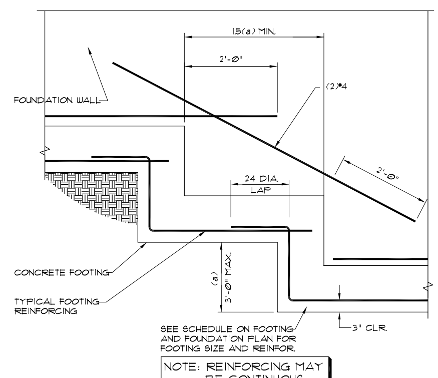
1 TYPICAL CONCRETE FLOOR JOINTS



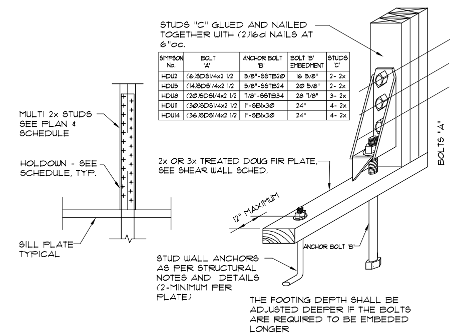
11 TYPICAL TURNDOWN FOOTING



8 TYPICAL CONC. WALL REINF.

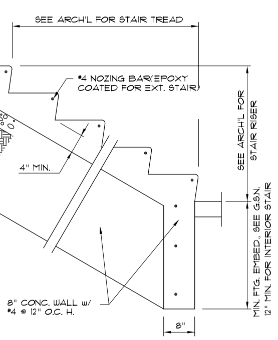


5 TYPICAL STEPPED FOOTING

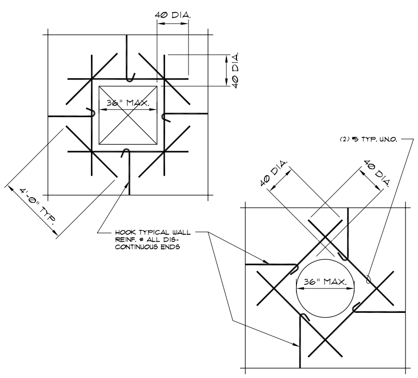


SIMPSON No.	BOLT 'A'	ANCHOR BOLT 'B'	BOLT 'B' EMBEDMENT	STUDS 'C'
HDU2	(6)SDS1/4x2 1/2	5/8"-SSTB20	16 5/8"	2- 2x
HDU5	(14)SDS1/4x2 1/2	5/8"-SSTB24	20 5/8"	2- 2x
HDU8	(20)SDS1/4x2 1/2	7/8"-SSTB34	28 7/8"	3- 2x
HDU11	(30)SDS1/4x2 1/2	1"-SB1x30	24"	4- 2x
HDU14	(36)SDS1/4x2 1/2	1"-SB1x30	24"	4- 2x

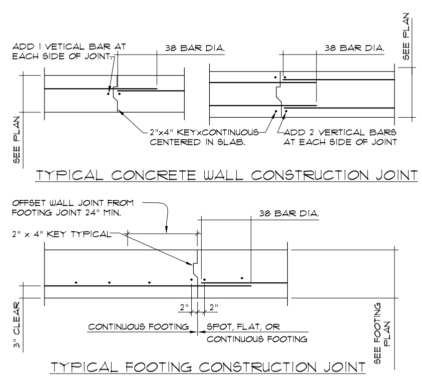
2 TYPICAL HOLDOWN TO CONC.



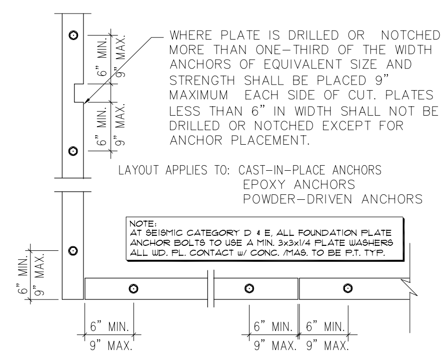
12 CONCRETE STAIR ON GRADE



9 TYP. REINF. ON CONC. WALL OPNG.



6 TYP. FTG. & WALL CONSTRUCTION JOINT



3 TYPICAL ANCHOR BOLTS LAYOUT

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH

10/1/2019

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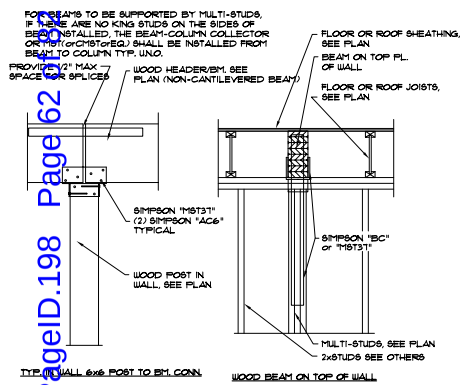
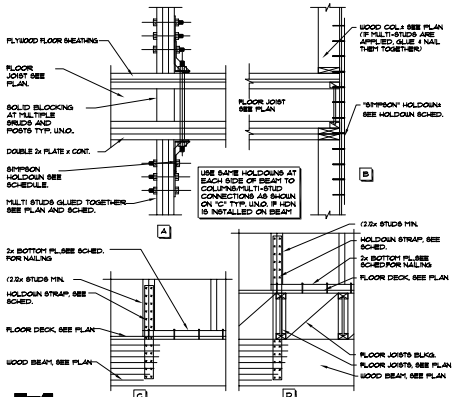
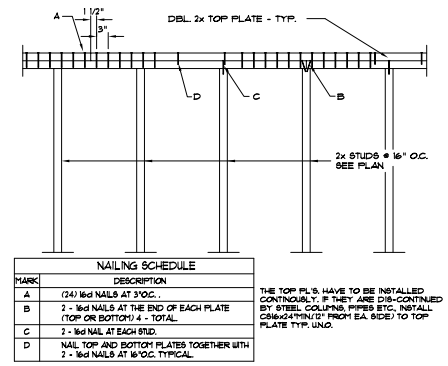
S1.2



10



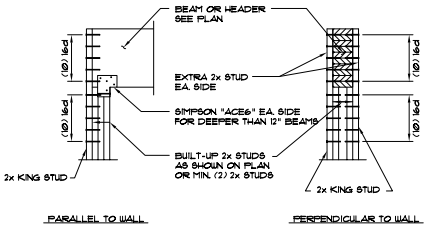
7 HOLDOWNS AT FLOOR TO FLOOR



NAILING SCHEDULE	
MARK	DESCRIPTION
A	(24) 16d NAILS AT 3"O.C.
B	2 - 16d NAILS AT THE END OF EACH PLATE (TOP OR BOTTOM) 4 - TOTAL
C	2 - 16d NAIL AT EACH STUD.
D	NAIL TOP AND BOTTOM PLATES TOGETHER WITH 2 - 16d NAILS AT 16"OC. TYPICAL

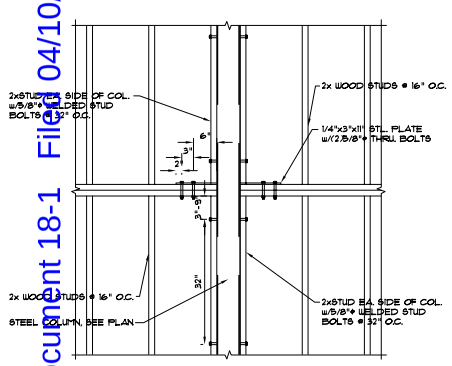
THE TOP PL'S. HAVE TO BE INSTALLED CONTINUOUSLY. IF THEY ARE DISCONTINUED BY STEEL COUPLING, PIPES ETC. INSTALL C516x24"MIN/12" FROM EA. SIDE) TO TOP PLATE TYP. U.N.O.

4 TYPICAL TOP PLATE SPLICE



NOTE: FOR BEAMS DEEPER THAN 16", ONE SIMPSON "MST60" SHALL BE USED TO CONNECT BEAM TO THE MULTI-STUDS TYP. U.N.O.

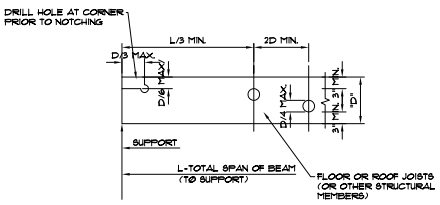
1 TYPICAL WOOD HEADER OR BEAM TO MULTI-STUDS CONNECTION



11 TYP. STEEL COLUMN TO STUD WALL CONNECTION

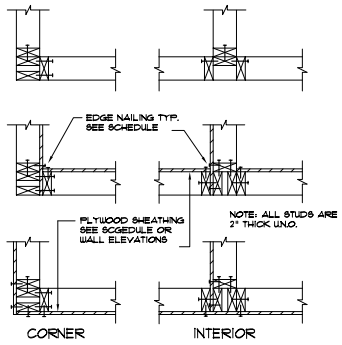
NAIL/STAPLE EQUIVALENT TABLE.				
FLOORS AND ROOF				
NAILS		STAPLES		
SIZE	SPACING	SIZE	SPACING	LENGTH
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	4"	1 1/2"
8d	2 1/2"	14 GA	2 1/2"	1 1/2"
8d	2"	14 GA	2"	1 1/2"
10d	6"	14 GA	4"	1 5/8"*
10d	4"	14 GA	2 1/2"	1 5/8"*
10d	2 1/2"	14 GA	2"	1 5/8"*
* IN 3/4" PLYWOOD USE 2" STAPLES				
WALL				
3/8" PLYWOOD				
8d	6"	14 GA	6"	1 3/8"
8d	4"	14 GA	4"	1 3/8"
8d	3"	14 GA	3"	1 3/8"
8d	2"	14 GA	2"	1 3/8"
1/2" PLYWOOD				
8d	6"	14 GA	6"	1 1/2"
8d	4"	14 GA	3"	1 1/2"
8d	3"	14 GA	2 1/2"	1 1/2"
10d	6"	14 GA	4"	1 1/2"
10d	4"	14 GA	3"	1 1/2"
10d	3"	14 GA	2"	1 1/2"

8 NAIL/STAPLE EQUIVALENT TABLE

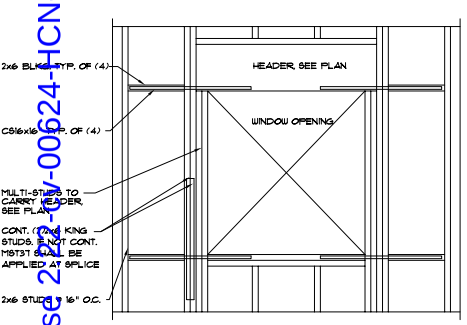


NOTE: NOTCHES AND DRILLED HOLES AS SHOWN ABOVE MAY BE USED ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER

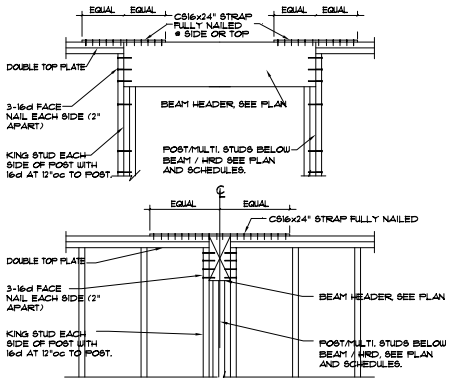
5 TYP. HOLES AND NOTCHING IN BEAMS



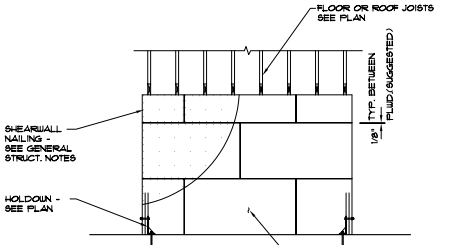
2 TYPICAL WALL INTERSECTION FRAMING



12 REINFORCED WINDOW OPNG. AS SHOWN ON PLAN AS△

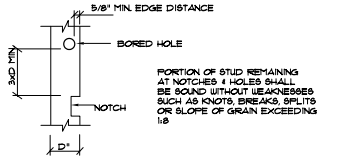


9 TYP. TOP PL. THRU BEAM HEADER IN WALL



NOTE:
THE PLYWOOD CAN BE PLACED VERTICALLY IF 1/2" PLYWOOD IS USED AND STUDS ARE 16" OR LESS ON CENTER.
1/2"(C-D,C-C) PLWD. CAN BE SUBSTITUTED BY 7/16" OSB

6 TYPICAL SHEAR WALL ELEVATION



WOOD STUD SIZE	BEARING		NON-BEARING	
	MAX. HOLE (40%)	MAX. HOLE (25%)	MAX. HOLE (60%)	MAX. HOLE (40%)
2x4	1 3/8"	7/8"	2 1/8"	1 3/8"
2x6	2 3/16"	1 3/8"	3 5/16"	2 3/16"

3

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SE19369

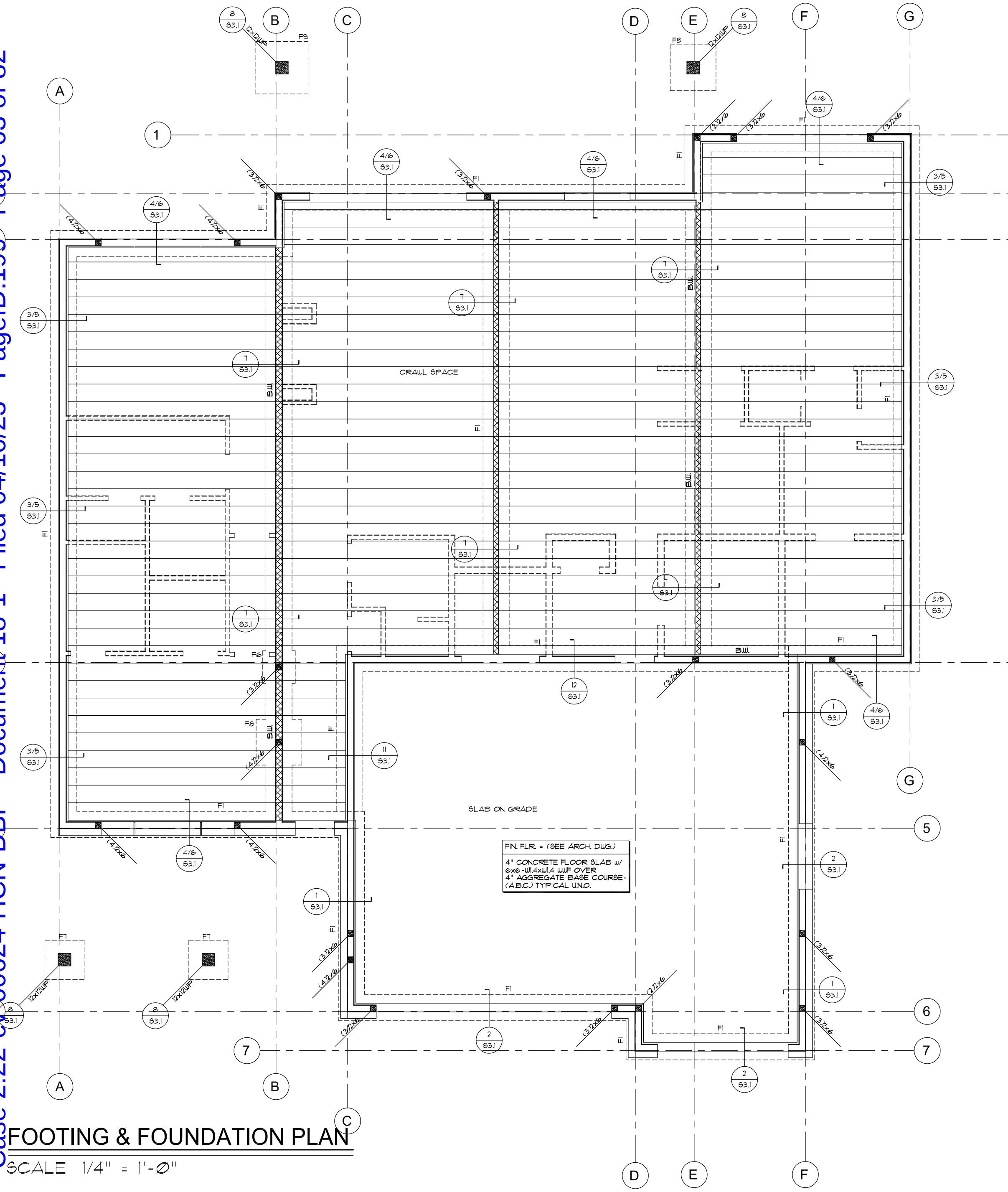
SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 10/1/2019
DRAWING NO. S1.3

NO.	REVISION	DATE

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
10/7/2019

Xrefs: S4212.DWG S4211.DWG S4210.DWG S4209.DWG S4208.DWG S4207.DWG S4206.DWG S4205.DWG S4204.DWG S4203.DWG S4202.DWG S4201.DWG TITLE.DWG



FOOTING & FOUNDATION PLAN

SCALE 1/4" = 1'-0"

TYPICAL FLOOR DECK:

3/4" PLWD./OSB SHEATHING, SPAN RATING 40/20
SEE GENERAL STRUCTURAL NOTES-TYPICAL
GLUE AND NAIL TO ALL JOISTS
8d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
8d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

FLOOR FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND STANDARD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL SHEAR WALL DETAIL
   D. TYPICAL TOP PLATE SPLICE DETAIL
2. HDR-1 = HEADER, SEE HEADER SCHEDULE TYPICAL.
3. ALL FLOOR MEMBERS ARE TO BE 11 7/8" TJI 210 TYPICAL. U.N.O.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON WALL SHEATHING PLWD. OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL U.N.O.
10. "—▷" INDICATES MOMENT CONN. TYP. U.N.O.
11. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS. HOLDOWNS SHOWN ARE LAYING ON FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

SCHEDULE FOR SIMPSON HANGERS ON 12" MAX. BEAMS AND JOISTS TYP.

	TOP MOUNT HANGERS	FACE MOUNT HANGERS
9 1/2" TJI SERIES	ITS	IUS
DBL. 9 1/2" TJI	MIT	MIU
11 7/8" TJI110	ITS	IUS
DBL. 11 7/8" TJI	MIT	MIU
1 3/4x LVLorPSL	WPU	HU
3 1/2x LVLorPSL	GLTV	HU/HGU
5 1/4x LVLorPSL	GLTV/HGLTV	HU/HGU
7x LVLorPSL	HGLTV	HGUS
3 1/8x GLB	GLST	
5 1/8x GLB	GLST	
6 3/4x GLB	GLST	
8 3/4x GLB	HGLST	
2x JOISTS	HU	LUS
(2)2x	HUS-2TF	LUS
(3)2x	HUS-3TF	LUS

ON STRUCTURAL PLANS AND DETAILS, THERE ARE SOME OPTIONS. ARCHITECTS PLEASE SPECIFY THE OPTIONS. IF G.C. OR OWNER HAS ANY CONCERNS ON THE OPTIONS, CONTACT ARCHITECTS TO CLARIFY THEM TYP. U.N.O.

ALL FLOOR JOISTS TO BE 11 7/8" TJI210 @ 16" O.C. TYPICAL, U.N.O.

CONTRACTOR PLEASE SEE ARCH. DWG. FOR PLUMBING LOCATION OF BATHTUB, TOILET. PLEASE OFFSET JOISTS WHERE OCCURS. USE DOUBLE JOISTS UNDER BATHTUB, KITCHEN ISLAND, AND OTHER HEAVY STUFFS.

NOTE: FOR ALL (2)1 3/4x11 7/8LVL BM PROVIDE MIN. (2)2x6 AS END BEARINGS TYP. U.N.O.

THE GLB BEAMS CAN BE SUBSTITUTED BY PSL (orLVL)BEAMS AS FOLLOWS:
(IT DOESN'T WORK FROM PSL(orLVL) TO GLB TYP.)

3 1/8x9GLB	3 1/2x9 1/2PSL/(2)1 3/4x9 1/2LVL
3 1/8x12GLB	3 1/2x11 7/8PSL/(2)1 3/4x11 7/8LVL
5 1/8x12GLB	5 1/4x11 7/8PSL/(3)1 3/4x11 7/8LVL
5 1/8x15GLB	5 1/4x16PSL/(3)1 3/4x16LVL
5 1/8x18GLB	5 1/4x18PSL/(3)1 3/4x18LVL
6 3/4x12GLB	7x11 7/8PSL/(4)1 3/4x11 7/8LVL

HDR: HEADER, SEE SCHEDULE
HDN: HOLDOWN, SEE SCHEDULE
SW: WOOD SHEAR WALL, SEE SCHEDULE
BW: BEARING WALL
BWA: BEARING WALL ABOVE
NBW: NON-BEARING WALL
OBR: OVER-BUILD ROOF
GT: GIRDER TRUSS
KP: KING POST
DJ: DOUBLE JOISTS

FREE-STANDING RETAINING WALL, SEE DET. 4/ S1.1 FOR SCHED.

FOUNDATION PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD CONCRETE DETAIL SHEET FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL EXCAVATION ADJACENT TO FOOTING
   C. TYPICAL SLAB JOINT DETAILS
   D. TYPICAL STEPPED FOOTING
2. WS - DENOTES CONCRETE WALL STEP.
3. F-1 - DENOTES FOOTING MARK - SEE FOOTING SCHEDULE.
4. K.C.J. - DENOTES KEYED CONSTR. JOINT - SEE STANDARD DETAIL.
5. C.J. - DENOTES CONTROL JOINT - SEE STANDARD DETAIL.
6. F-----S - DENOTES FOOTING STEP, SEE DETAIL TYPICAL.
7. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. SEE ARCHITECTURAL FOR ALL DIMENSIONS, SLAB SLOPES & DEPRESSIONS NOT NOTED.
8. ALL SLABS ON GRADE ARE TO BE JOINTED AT NO MORE THAN 15'-0" EACH WAY USING JOINTS PER STANDARD DETAIL. IN ADDITION, NO SECTION OF CONCRETE SHALL HAVE AN ASPECT RATIO OF GREATER THAN 1 1/2:1. PROVIDE (2) #4 x 4'-0" MID-HEIGHT SLAB BARS ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. ALL COLUMN ISOLATION JOINT CORNERS ARE TO BE INTERSECTED BY A SLAB JOINT OR REINFORCED WITH SLAB BARS PER ABOVE. SUBMIT COMPLETE JOINT LAYOUT PLAN TO THE ARCHITECT FOR PRIOR REVIEW.
9. ALL WOOD TO CONTACT w/ CONC. OR MASONRY TO BE P.T. OR REDWOOD TYP.
10. ALL FOUNDATION PL. ANCHOR BOLTS TO USE A MIN. 3x3x1/4 PL. WASHERS TYP.

CONCRETE POUR NOTES:

1. VERIFY FTG STEP LOCATIONS AND HEIGHT IN FIELD PRIOR TO FORMING FOOTINGS. MAKE FTG REBAR CONTINUOUS THROUGH FTGS WITH BENT BARS AT CORNERS. LAP BARS 40 BAR DIAMETERS AT SPLICES AND TIE.
2. DO NOT POUR ANY CONCRETE UNTIL THE FORMS ARE ADEQUATELY BOLSTERED AND SUPPORTED AND ALL REBAR IS IN PLACE AND SECURED.
3. DO NOT PERMIT FIN. GRADE TO COME CLOSER THAN 6" TO TOP OF CONCRETE.
4. FOR FOUNDATIONS REBAR INSPECTIONS FOR FOUNDATION WALLS OVER 8'–0", FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED AND APPROVED.
5. PROVIDE A U–FER GROUND DURING CONSTRUCTION OF FOOTING & FOUNDATION.
6. ALL FASTENERS (IE NAILS, SCREWS, ANCHOR BOLTS, ETC.) WHICH ARE TO BE INSTALLED IN PRESERVATIVE TREATED WOOD (IE SILL PLATES) SHALL BE HOT–DIPPED, ZINC–COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER(MEET THE REQUIREMENTS OF IBC 2304.9.5.)
7. ALL L ANGLES FOR SUPPORTING VENEERS ARE HOT–DIPPED GALVANIZED.

FOOTING SCHEDULE

BASED ON SOIL BEARING = 1500 PSF ARCH/CONTRACTOR VERIFY IT

MARK	SIZE	REINFORCING	REMARKS
F1	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	
F2	2'-6" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F3	3'-0" x CONT. x 12"	(3)#5/(4)#4 CONT.	
F4	1'-4" x CONT. x 12"	(2) #4 CONT.	THICKENED SLAB
F5	2'-0" x CONT. x 12"	(2)#5/(3)#4 CONT.	THICKENED SLAB
F6	2'-6" SQ. x 12"	(2) #5 E.W.	
F7	3'-0" SQ. x 12"	(3) #5 E.W.	
F8	3'-6" SQ. x 12"	(4) #5 E.W.	
F9	4'-0" SQ. x 12"	(4) #5 E.W.	
F10	4'-6" SQ. x 12"	(5) #5 E.W.	
F11	5'-0" SQ. x 12"	(5) #5 E.W.	
F12	5'-6" SQ. x 13"	(6) #5 E.W.	
F13	6'-0" SQ. x 13"	(6) #5 E.W.	
F14	7'-0" SQ. x 14"	(6) #6 E.W.	
F15	8'-0" SQ. x 16"	(8) #7 E.W.	
F16	4'-0" x CONT. x 12"	(4) #5 CONT. #5x3'-6"@12" O.C.	
F17	9'-0" SQ. x 18"	(9) #8 E.W.	

CONCRETE BEAM SCHEDULE

MARK	SIZE	BOTTOM REINF.	TOP REINF.	TIES	REMARKS
CB-1	8"x8"	(2) #5	(2) #5	NONE	(2)#5x2'-6" @45 DEG. @ EA. CORNER
CB-2	8"x12"	(2) #5	(2) #5	#3 @ 10" O.C.	
CB-3	8"x16"	(2)#6	(2) #6	#4 @ 10" O.C.	
CB-4	8"x24"	(2)#7	(2) #7	#4 @ 10" O.C.	

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NEW CABIN
HIGH STAR RANCH
976 N. STATE RD. 32, KAMAS, UTAH
SE19369

SCALE: AS NOTED
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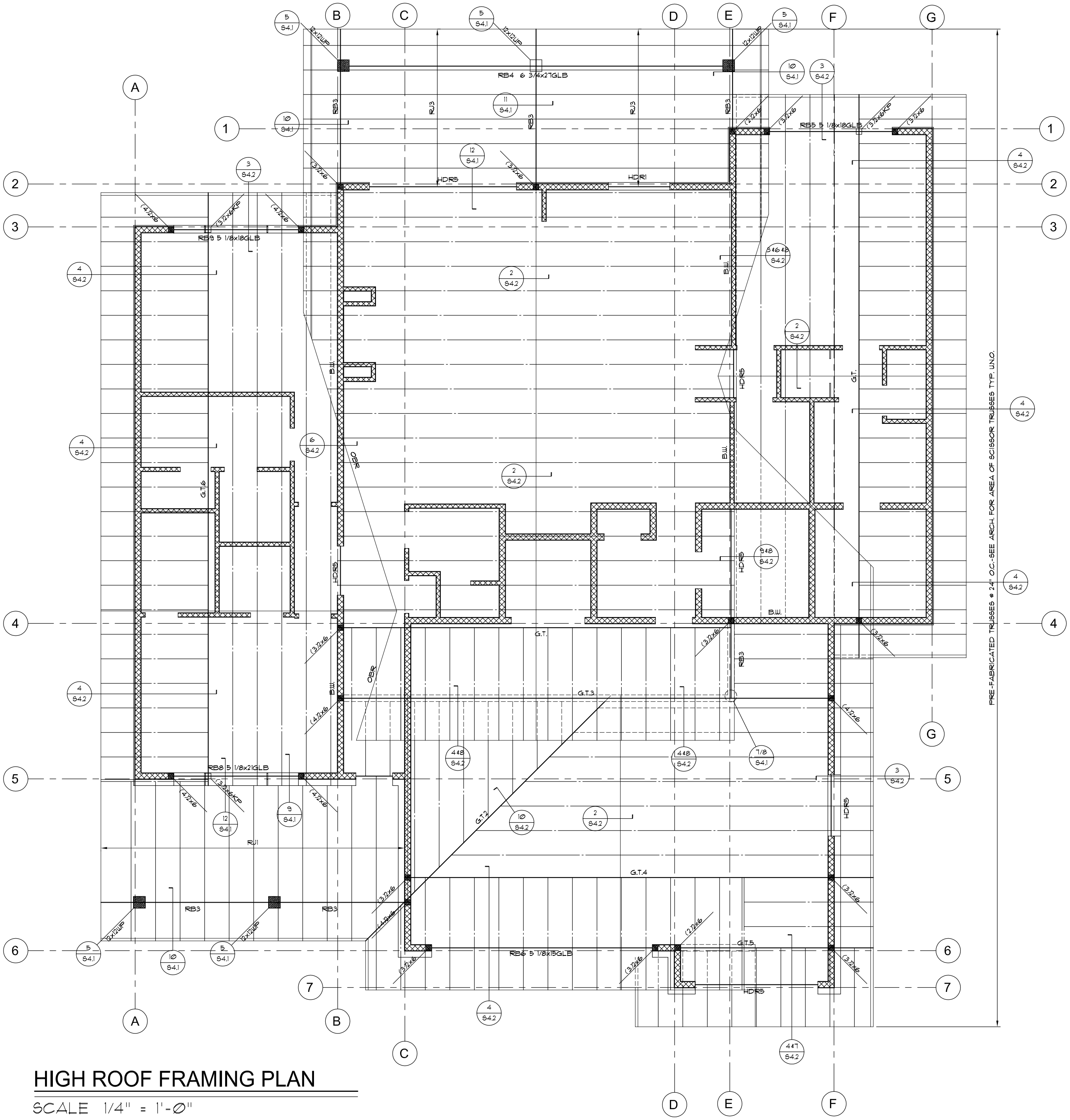

HIGH ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"

ROOF JOIST SCHEDULE

MARK	SIZE	TYPE	SPACE	REMARKS
RJ1	11 7/8"	TJI210	24" O.C.	TYP. U.N.O.
RJ2	11 7/8"	TJI210	16" O.C.	OR TJI360 @ 24" O.C.
RJ3	11 7/8"	TJI210	12" O.C.	OR TJI560 @ 24" O.C.

NOTES:
1. PLACE FULL DEPTH BLOCKING BETWEEN JOISTS AT ALL BEARING POINTS.
2. BEVELED BEARING PLATES TO BE REQUIRED WITH TJI JOISTS
3. ALL DOUBLE JOISTS TO BE BEARED ON MIN. (2) 2x STUDS AT WALL BEARING TYP. U.N.O.
4. NO WEB STIFFENERS ARE REQUIRED IF NOT SPECIFIED TYP. U.N.O.

ROOF TRUSS DESIGN CRITERIA

MARK	TOP CHPRD DEAD LOAD	BOTTOM CHD. DEAD LOAD	TOP CHPRD SNOW LOAD	TOTAL LOADS
REGULAR TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF
GIRDER TRUSSES	15 PSF	5 PSF	90 PSF	110 PSF

NOTE: SNOW DRIFT SHALL BE INCLUDED ON DESIGN IF APPLIED MIN. 1/2 OF ROOF SNOW LOAD SHALL BE APPLIED TO LOWER ROOF SNOW DRIFT. SEE PLAN FOR POINT LOADS TO GIRDER TRUSSES IF APPLIED.

A TRUSS PACKAGE MUST BE SUBMITTED TO THE BUILDING OFFICIAL AS A DEFERRED SUBMITTAL. PRIOR TO SUBMITTING TO THE CITY, THE PACKAGE MUST BE REVIEWED BY THE ENGINEER OF RECORD AND STAMPED FOR GENERAL CONFORMANCE. NO TRUSSES ARE TO BE INSTALLED UNTIL APPROVED BY THE BUILDING OFFICIAL.

G.T. INDICATES GIRDER TRUSS TYP.

FOR THOSE TRUSSES RIGHT ABOVE THE SHEAR WALLS, A LATERAL LOAD OF 240 PLF ACTING ON TOP OF TRUSS

RB1: 5 1/8x12 GLB
RB2: (2) 1 3/4x11 7/8 LVL
RB3: (3) 1 3/4x11 7/8 LVL or 5 1/8x12 GLB

ROOF FRAMING PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES SHEET AND STANDARD WOOD FRAMING DETAILS FOR
   A. GENERAL STRUCTURAL NOTES
   B. TYPICAL HEADER DETAIL
   C. TYPICAL TOP PLATE SPLICE DETAIL
   D. TYPICAL SHEAR WALL DETAIL
2. K.P. = KING POST. SEE PLAN FOR SIZE AND LOCATION TYPICAL.
3. ALL ROOF JOISTS OR TRUSSES ARE CALLED OUT ON PLAN. SEE PLAN FOR SIZE & SPACE TYP.
4. ESTABLISH AND VERIFY ALL OPENINGS & INSERTS FOR MECHANICAL, ELECTRICAL & PLUMBING WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
5. HANGING CEILING, DUCTWORK OR OTHER ITEMS FROM THE PLYWOOD DECK IS NOT ALLOWED.
6. PROVIDE JOIST/TRUSS BRIDGING AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE SOLID BLOCKING AT JOIST/TRUSS BEARING TYPICAL U.N.O.
8. PROVIDE 1/8" GAP ON ROOF DECK PLYWOOD OR FOLLOW MANUFACTURER'S SPECIFICATION.
9. SEE STANDARD DETAIL FOR MULTI-STUDS TO WOOD BEAM/HEADER CONNECTION TYPICAL.
10. SHEAR WALLS SHOWN ARE BELOW FRAMING LEVEL. COORDINATE WITH FRAMING PLANS.

HEADER SCHEDULE

MARK	SIZE	END BRG.	REMARKS
HDR-1	(3)2x6	(2)2x6	
HDR2	(3)2x8	(2)2x6	or (3)1 3/4x5 1/2LVL
HDR-3	(3)2x10	(2)2x6	or (3)1 3/4x7 1/4LVL
HDR-4	(3)2x12	(3)2x6	or (3)1 3/4x9 1/2LVL
HDR-5	5 1/8x12 GLB	(3)2x6	or (3)1 3/4x11 7/8LVL
HDR-6	(2)2x6	(2)2x4	
HDR-7	(2)2x8	(3)2x4	or (2)1 3/4x5 1/2LVL
HDR-8	(2)2x10	(3)2x4	or (2)1 3/4x7 1/4LVL
HDR-9	(2)2x12	(3)2x4	or (2)1 3/4x9 1/2LVL
HDR-10	3 1/8x12 GLB	(4)2x4	or (2)1 3/4x11 7/8LVL

NOTES:
1. GLULAM BEAMS SHALL BE COMBINATION SYMBOL 24F-V4 FOR REGULAR BEAM AND 24F-V8 FOR CANTILEVERED BEAM TYPICAL.
2. ALL GLULAM BEAMS TO BE ZERO CAMBER BEAMS U.N.O.
3. ALL MULTI-MEMBER BEAMS & STUDS SHALL BE NAILED TOGETHER w/(2) ROWS 16d @ 6" O.C. BOTH SIDES TYPICAL.

NUMBER OF KING STUDS:
ONE KING STUD FOR OPNG. 2'-0" TO 5'-0"
TWO KING STUDS FOR OPNG. 5'-0" TO 10'-0"
THREE KING STUDS FOR OPNG. 10'-0" TO 15'-0"
FOUR KING STUDS FOR OPNG. 15'-0" TO 20'-0"

TYPICAL ROOF DECK:
5/8" PLWD/OSB SHEATHING, SPAN RATING 40/20
SEE GENERAL STRUCTURAL NOTES-TYPICAL NAILING:
10d @ 6" O.C. AT ALL PANEL EDGES, SUPPORTED EDGES, AND ALL TOP OF SHEAR WALLS
10d @ 12" O.C. AT ALL PANEL FIELD
PLACE SHEATHING LONG-WISE ACROSS FRAMING, STAGGER END JOINTS. UNBLOCKED DIAPHRAGM.

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
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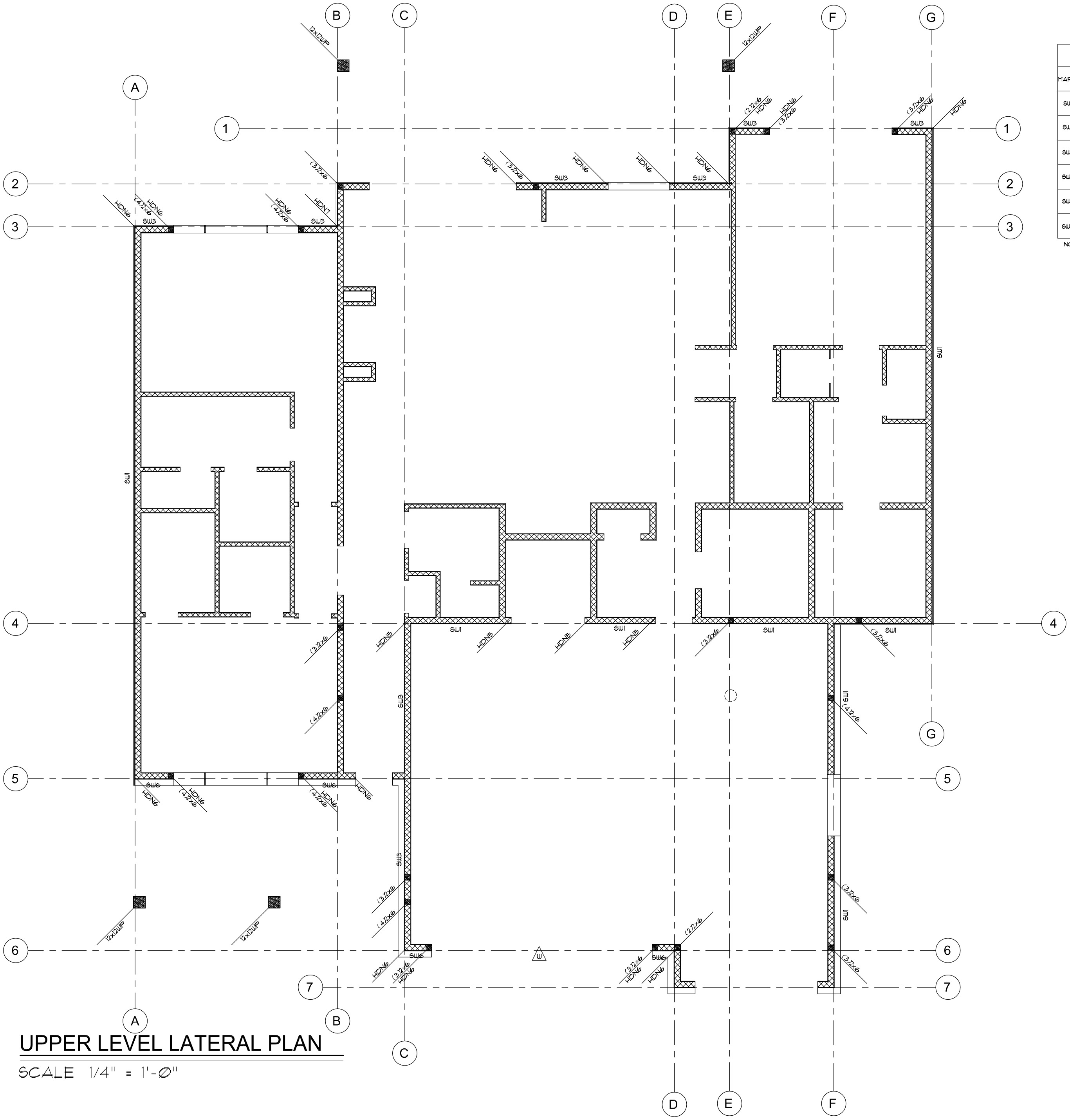


UPPER LEVEL LATERAL PLAN
SCALE 1/4" = 1'-0"

SHEARWALL SCHEDULE

MARK	SHEATHING: PLYWOOD	SHEATHING: EDGE NAILING	SHEATHING: INTER. NAILING	BOTTOM PLATE	NAILING THRU FLOOR / ANCHOR BOLTS TO CONC.	PANEL EDGE STUD	A35 BLKG. TO TOP PL. WHERE DRAG OCCURS
SW1	1/2" (C-D, C-C)	10d @ 6" O.C.	10d @ 12" O.C.	2xPL.	16d @ 6" O.C. / 3/4" A.B. x 10" @ 48" O.C.	--	@ 24" O.C.
SW2	1/2" (C-D, C-C)	10d @ 4" O.C.	10d @ 12" O.C.	2xPL.	16d @ 3" O.C. / 3/4" A.B. x 10" @ 16" O.C.	--	@ 16" O.C.
SW3	1/2" (C-D, C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 12" O.C.
SW4	1/2" (C-D, C-C)	10d @ 2" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 8" O.C. / 3/4" A.B. x 10" @ 24" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 9" O.C.
SW5	DBL.1/2"(C-D,C-C)	10d @ 4" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 6" O.C. / 3/4" A.B. x 10" @ 16" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 8" O.C.
SW6	DBL.1/2"(C-D,C-C)	10d @ 3" O.C.	10d @ 12" O.C.	3xPL.	1/4" LAG BOLTS x5" @ 5" O.C. / 3/4" A.B. x 10" @ 12" O.C.	2xBLKG. MIN. 3xSTUDS MIN.	@ 6" O.C.

NOTE: FOR DOUBLE SIDED PLYWOOD SHEAR WALLS, THE PANEL JOINTS ON BOTH FACES TO BE OFFSET TO FALL ON DIFFERENT STUDS TYPICAL.
1/2"(C-D,C-C) PLWD CAN BE SUBSTITUTED BY 7/16" OSB TYP. U.N.O..
FOR SW4, FRAMING AT PANEL EDGES TO BE 3xSTUD AND NAILS TO BE STAGGERED TYP.
WHERE LAG BOLTS TO BE USED, THE RIM JOIST OR JOIST BLOCKING TO BE MIN. 3x MEMBER TYP.

HOLDOWN SCHEDULE/SIMPSON C-C-2015

MARK	HOLDOWN EACH END: TYPE	END STUD	ANCHOR BOLT	LOCATION
HDN1	MST37	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN2	MST60	(2)2xSTUDS MIN.	--	FLOOR TO FLOOR
HDN3	DBL. MST60	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN4	HD12	(4)2xSTUDS MIN. or 6x6	--	FLOOR TO FLOOR
HDN5	HDU2/HDC5/HTT4 STHD10or10RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB16	FOUNDATION
HDN6	HDU5/HD7/ STHD14or14RJ	(2)2xSTUDS MIN.	SDS2.5/SSTB24	FOUNDATION
HDN7	HDU8/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SSTB28	FOUNDATION
HDN8	HDU11/HDQ8	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION
HDN9	HDU14/HD12	(3)2xSTUDS MIN.	SDS2.5/SB1x30	FOUNDATION

NOTE: SAME SIZE EPOXY BOLTS CAN BE USED AS SUBSTITUTION OF SSTB'S.ANCHOR BOLTS TYP.
SEE SIMPSON'S FOR MIN. EMBEDED LENGTH.

LVL NAILING/BOLTING SCHEDULE:
ALL NAILS AND BOLTS ARE 2" FROM T&B

(2)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C.
(2)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C.
(2)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C.
(2)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C.
(2)1 3/4"x16"LVLS, (6)16d @ 6" O.C.
(2)1 3/4"x18"LVLS, (7)16d @ 6" O.C.

(3)1 3/4"x5 1/2"LVLS, (2)16d @ 12" O.C. E.S.
(3)1 3/4"x7 1/4"LVLS, (3)16d @ 12" O.C. E.S.
(3)1 3/4"x9 1/2"LVLS, (4)16d @ 6" O.C. E.S.
(3)1 3/4"x11 7/8"LVLS, (5)16d @ 6" O.C. E.S.
(3)1 3/4"x16"LVLS, (6)16d @ 6" O.C. E.S.
(3)1 3/4"x18"LVLS, (7)16d @ 6" O.C. E.S.

(4)1 3/4"x7 1/4"LVLS, (2)1/4"ϕ LAG BOLTS @ 24" O.C.
(4)1 3/4"x9 1/2"LVLS, (2)1/4"ϕ LAG BOLTS @ 16" O.C.
(4)1 3/4"x11 7/8"LVLS, (3)1/4"ϕ LAG BOLTS @ 12" O.C.
(4)1 3/4"x16"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(4)1 3/4"x18"LVLS, (5)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(5)1 3/4"x7 1/4"LVLS, (3)1/4"ϕ LAG BOLTS @ 32" O.C. E.S.
(5)1 3/4"x9 1/2"LVLS, (3)1/4"ϕ LAG BOLTS @ 24" O.C. E.S.
(5)1 3/4"x11 7/8"LVLS, (4)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x16"LVLS, (5)1/4"ϕ LAG BOLTS @ 16" O.C. E.S.
(5)1 3/4"x18"LVLS, (6)1/4"ϕ LAG BOLTS @ 12" O.C. E.S.

(W) INDICATES WINDOW OPENING REINFORCEMENT, SEE DETAIL 12/S1.3 TYP.

ALL DBL. 2x JOISTS ARE TO BE CONNECTED w/GLUE AND w/(5)16d @ 6" O.C.
ALL DBL. TJI JOISTS ARE TO BE CONNECTED w/STIFF. PL.+GLUE w/(5)16d @ 6" O.C.
ALL MICRO-LAM DBL. BEAMS ARE TO BE CONNECTED w/GLUE AND (5)16d @ 6" O.C.
ALL DBL. STUDS ARE TO BE CONNECTED WITH (2)10d @ 6" O.C. STAGGERED

ICC ESR APPROVAL NUMBERS
TJI JOISTS: ICC ESR-1153
MICROLAMS: ICC ESR-2015
PARALLAMS: ICC ESR-2015

WOOD STUD WALLS ARE TO BE 2x6 DF#2 GRADE STUDS @ 16" O.C. OR BETTER TYP. U.N.O.

WOOD STUD WALL SCHEDULE

TYPE \ MARK / HEIGHT	2x4 DF#2 @ 16" O.C.	2x6 DF#2 @ 16" O.C.	2x6 DF#2 @ 12" O.C.	1 3/4x5 1/2 LVL@16"O.C.	1 3/4x5 1/2 LVL@12"O.C.	2x8DF#2 @16"O.C.	1 3/4x7 1/4 LVL@16"O.C.
NON-BEARING INTERIOR WALLS	16'-0"	24'-0"	--				
BEARING INTERIOR WALLS	12'-0"	20'-0"	--				
NON-BEARING EXTERIOR WALLS	10'-0"	16'-0"	18'-0"				
BEARING EXTERIOR WALLS	8'-0"	12'-0"	16'-0"	18'-0"	21'-0"	18'-0"	25'-0"

NOTES: 1. FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

CEILING JOIST SCHEDULE

2x4 STUD GRADE @ 24"/16" O.C.	2x6 DF#2 GRADE @ 24"/16" O.C.	2x8 DF#2 GRADE @ 24"/16" O.C.	REMARKS
11'/12'	16'/18'	22'/24'	

NOTES: FOR THE CASE NOT FOUND HERE, INFORM ENG. FOR DESIGN.

EPOXY BOLTS CALLED OUT ON PLAN ARE SIMPSON "SET" FOR CMU APPLICATION (ICC ESR1772) & HILTI HIT RE 500-SD EPOXY BOLTS FOR CONC. APPLICATIONS (ICC ES ESR 2322).
THE INSTALLING REQUIREMENT FOR ANCHOR BOLTS AND/OR REBAR DOWELS ARE AS FOLLOWED:
DIAMETER/DRILL DIA./EMBED. DEPTH/EDGE DIST./SPACING DIST.
1/2" / 5/8" / 4 1/4" / 1 3/4" / 6 3/8"
5/8" / 3/4" / 5" / 1 3/4" / 7 1/2"
3/4" / 7/8" / 6 3/4" / 1 3/4" / 10 1/8"

LICENSED STRUCTURAL ENGINEER No. 260129 HUA SHEN STATE OF UTAH
10/7/2019

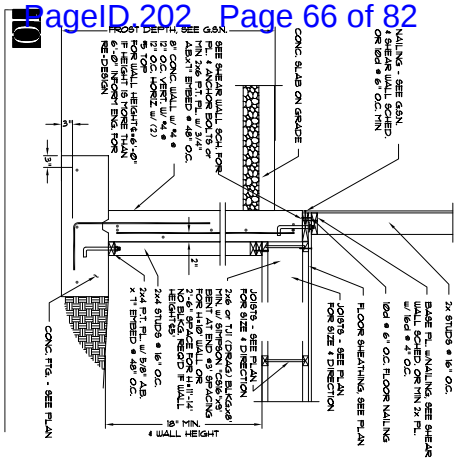
NO.	REVISION	DATE

Shen Engineers, Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD. SUITE 208
HOLLADAY, UTAH 84117
801.277.2625
E-mail: shenengr@msn.com

NEW CABIN
HIGH STAR RANCH
976 N. STATE RD. 32, KAMAS, UTAH
SE19369

SCALE AS NOTED
DRAWING TITLE STRUCTURE

DATE: 10/7/2019
DRAWING NO. S2.3



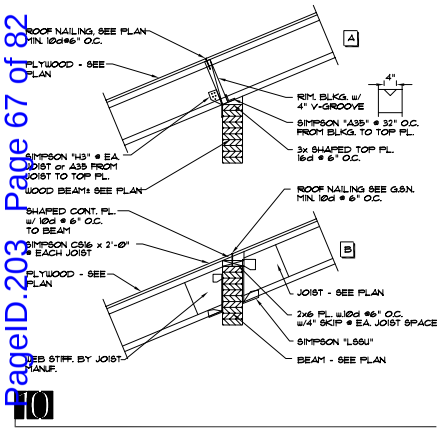
DRAWING NO.	S3.1
DATE	10/7/2019
SCALE	AS NOTED
DRAWING TITLE	STRUCTURE

NEW CABIN
HIGH STAR RANCH
976 N. STATE RD. 32, KAMAS, UTAH
SE19369

Shen Engineers, Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD.
SUITE 208
HOLLADAY, UTAH 84117
801.277.2625
E-mail: sheneng@msn.com

NO.	REVISION	DATE

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
10/7/2019



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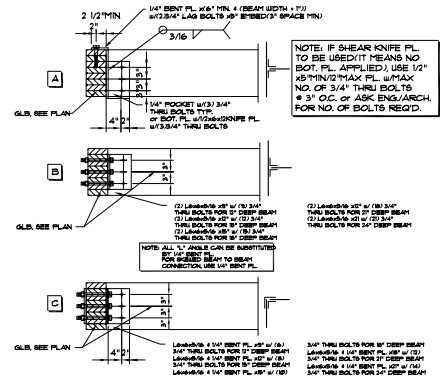

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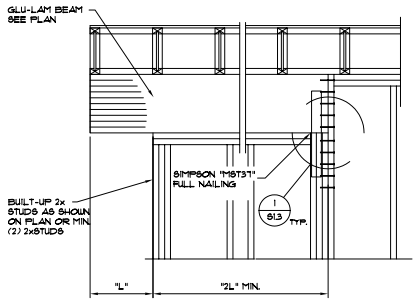
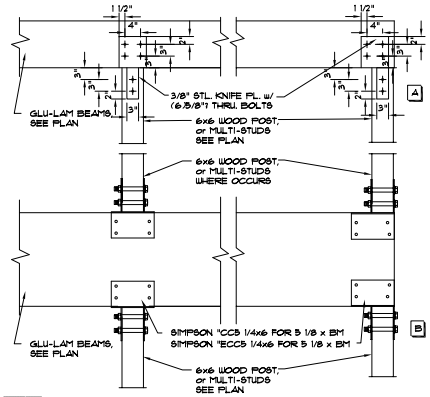
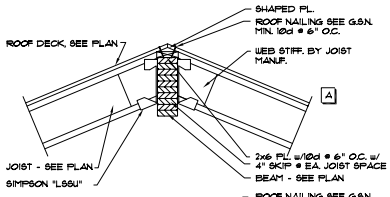
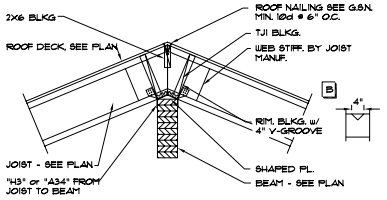


4 TYP. IN-WALL CANTILEVERED BEAM



1 TYPICAL BEAM TO WOOD POST CONN.





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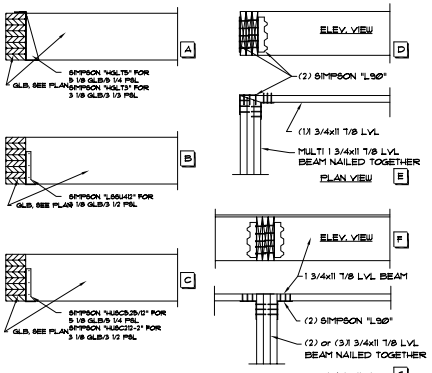

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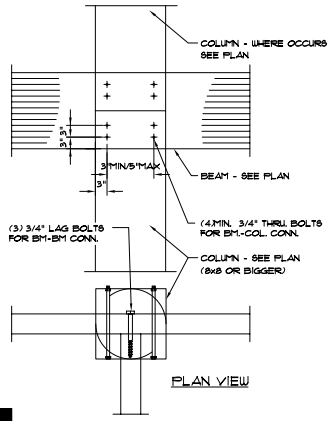
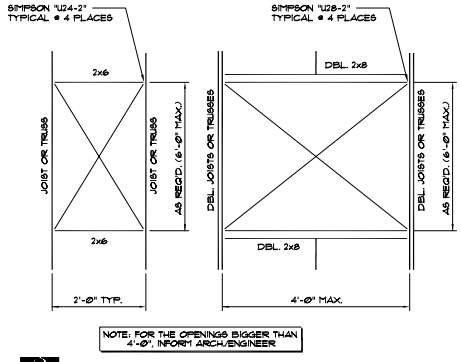
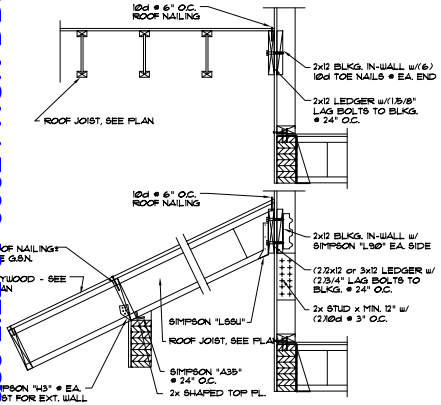


5 TYPICAL CONN. FOR BM. TO BIG COL.



2 TYPICAL OPENING FRAMING



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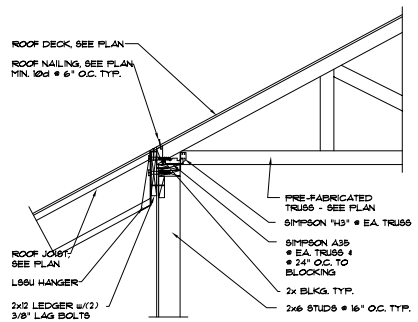

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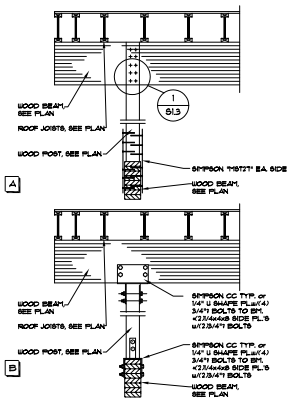

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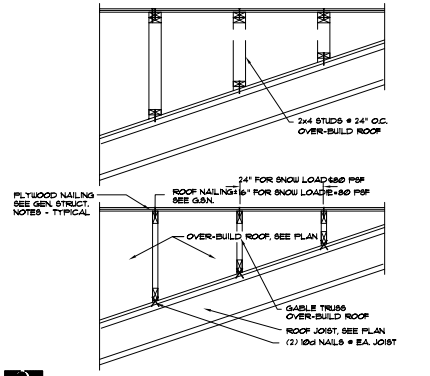


3 SUGGESTED OVER-BUILD ROOF DETAIL

Shen Engineers, Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD. SUITE 201
HOLLADAY, UTAH 84117
801.277.2625
E-mail: shenengr@msn.com

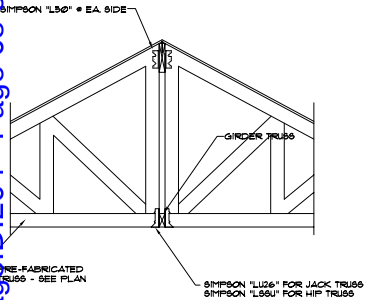
NEW CABIN
HIGH STAR RANCH
976 N. STATE RD. 32, KAMAS, UTAH
SE19369

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 10/1/2019
DRAWING NO.: S4.1

NO.	REVISION	DATE

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
10/1/2019



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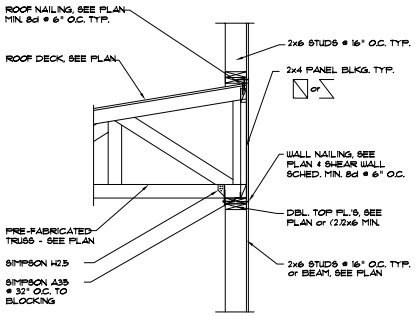

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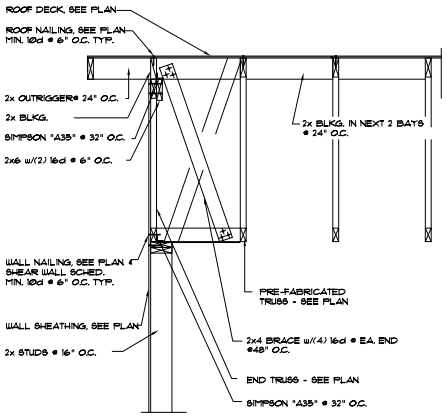

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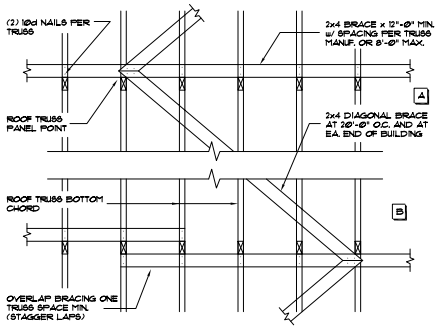
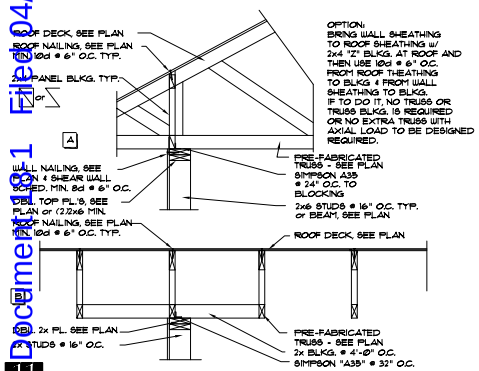
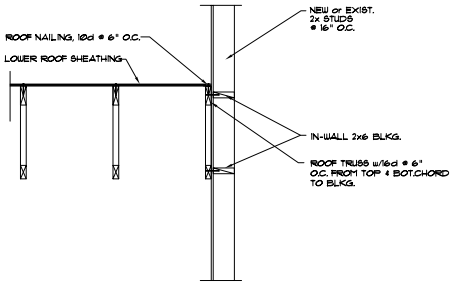


1 TYP. ROOF TRUSS BRACING (PLAN)



11 TYP. INT. SHEAR WALL TO TRUSS CONN.



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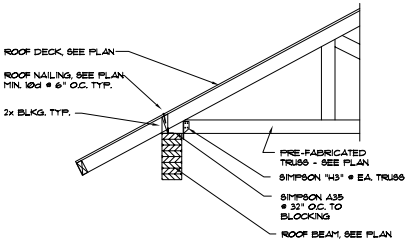

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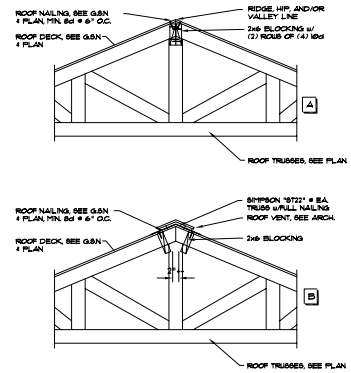
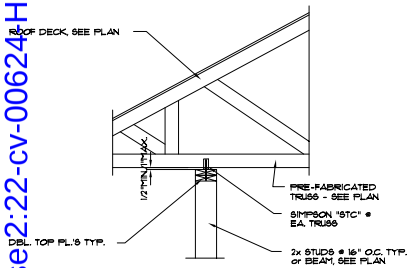
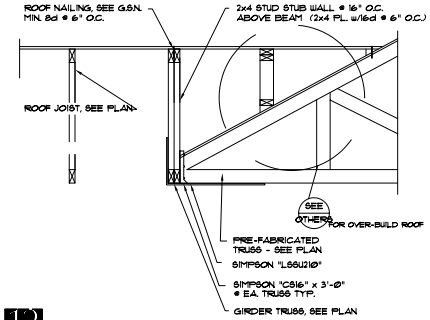


2 TYPICAL ROOF RIDGE AND HIP DETAILS



12 TRUSS TO NON-BRG. WALL CONNECTION



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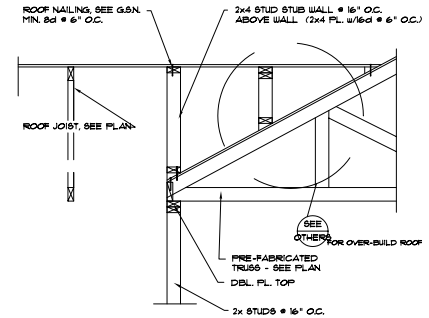

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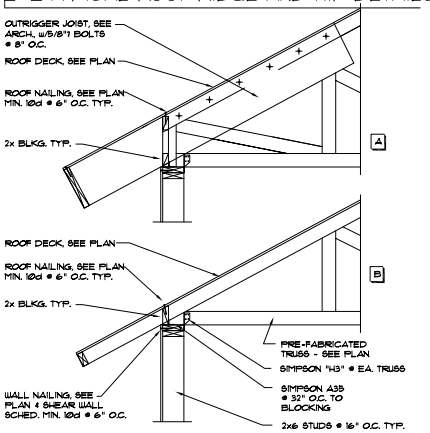

3

LICENSED STRUCTURAL ENGINEER
No. 260129
HUA SHEN
STATE OF UTAH
10/7/2013

NO.	REVISION	DATE

Shen Engineers, Inc.
Structural/Seismic Consultants
2225 E. MURRAY HOLLADAY RD
SUITE 205
HOLLADAY, UT 84117
801.277.2675
E-mail: shenengr@msn.com

NEW CABIN
HIGH STAR RANCH
976 N. STATE RD. 32, KAMAS, UTAH
SE19369

SCALE: AS NOTED
DRAWING TITLE: STRUCTURE

DATE: 10/1/2013
DRAWING NO.: S4.2

EXHIBIT F

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

United States Register of Copyrights and Director

Registration Number
VA 2-316-352
Effective Date of Registration:
August 24, 2022
Registration Decision Date:
August 30, 2022

Title

Title of Work: HIGHSTAR CABIN 2500

Completion/Publication

Year of Completion: 2017
Date of 1st Publication: September 28, 2017
Nation of 1st Publication: United States

Author

- **Author:** Shen Engineers, Inc.

Author Created: technical drawing
Work made for hire: Yes
Citizen of: United States
Domiciled in: United States

Copyright Claimant

Copyright Claimant: Shen Engineers, Inc.
2225 E. Murray-Holladay Road, #208, Salt Lake City, UT, 84117, United States

Limitation of copyright claim

Material excluded from this claim: 2-D artwork, the floor plans on pages 2.1-2.3 are not the property of Applicant

New material included in claim: 2-D artwork, technical drawing, The work is a collection of drawings other than excluded material derived from engineering drawings of Applicant dating back to 1999

Rights and Permissions

Organization Name: Shen Engineers, Inc.
Name: HUA SHEN
Email: sheneng@msn.com

Telephone: (801)277-2625
Address: 2225 E. Murray Holladay Road, #
#208
Salt Lake City, UT 84117

Certification

Name: Randall B. Bateman
Date: August 24, 2022
Applicant's Tracking Number: 8112.SHEN.CR

Correspondence: Yes

EXHIBIT G

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

United States Register of Copyrights and Director

Registration Number
VA 2-319-648
Effective Date of Registration:
August 24, 2022
Registration Decision Date:
September 23, 2022

Title

Title of Work: HIGHSTAR CABIN 2800

Completion/Publication

Year of Completion: 2017
Date of 1st Publication: October 05, 2017
Nation of 1st Publication: United States

Author

- **Author:** Shen Engineers, Inc.
Author Created: 2-D artwork, technical drawing
Work made for hire: Yes
Citizen of: United States
Domiciled in: United States

Copyright Claimant

Copyright Claimant: Shen Engineers, Inc.
2225 E. Murray-Holladay Road, #208, SALT LAKE CITY, UT, 84117, United States

Limitation of copyright claim

Material excluded from this claim: 2-D artwork, the floor plans on pages 2.1-2.3 are not the property of Applicant

New material included in claim: 2-D artwork, technical drawing, The work is a collection of drawings other than excluded material derived from engineering drawings of Applicant dating back to 1999

Rights and Permissions

Organization Name: Shen Engineers, Inc.
Name: HUA SHEN

EXHIBIT H

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

United States Register of Copyrights and Director

Registration Number
VA 2-319-674
Effective Date of Registration:
August 24, 2022
Registration Decision Date:
September 23, 2022

Title

Title of Work: HIGHSTAR CABIN 2050

Completion/Publication

Year of Completion: 2017
Date of 1st Publication: August 28, 2017
Nation of 1st Publication: United States

Author

- **Author:** Shen Engineers, Inc.

Author Created: 2-D artwork, technical drawing
Work made for hire: Yes
Citizen of: United States
Domiciled in: United States

Copyright Claimant

Copyright Claimant: Shen Engineers, Inc.
2225 E. Murray-Holladay Road, #208, Salt Lake City, UT, 84117, United States

Limitation of copyright claim

Material excluded from this claim: 2-D artwork, the floor plans on pages 2.1-2.3 are not the property of Applicant

New material included in claim: 2-D artwork, technical drawing, The work is a collection of drawings other than excluded material derived from engineering drawings of Applicant dating back to 1999

Rights and Permissions

Organization Name: Shen Engineers, Inc.
Name: HUA SHEN
Email: sheneng@msn.com

EXHIBIT I

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

United States Register of Copyrights and Director

Registration Number
VA 2-330-718
Effective Date of Registration:
August 24, 2022
Registration Decision Date:
December 14, 2022

Title

Title of Work: HIGHSTAR CABIN 3300

Completion/Publication

Year of Completion: 2017
Date of 1st Publication: November 05, 2017
Nation of 1st Publication: United States

Author

- **Author:** Shen Engineers, Inc.

Author Created: 2-D artwork, technical drawing
Work made for hire: Yes
Citizen of: United States
Domiciled in: United States

Copyright Claimant

Copyright Claimant: Shen Engineers, Inc.
2225 E. Murray-Holladay Road, #208, Salt Lake City, UT, 84117, United States

Limitation of copyright claim

Material excluded from this claim: technical drawings which were previously published

New material included in claim: technical drawings and the arrangement of technical drawings

Rights and Permissions

Organization Name: Shen Engineers, Inc.
Name: HUA SHEN
Email: sheneng@msn.com
Telephone: (801)277-2625
Address: 2225 E. Murray Holladay Road, #

EXHIBIT J

Copyright
United States Copyright Office

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Public Catalog

Copyright Catalog (1978 to present)
Search Request: Left Anchored Name = Shen engineers
Search Results: Displaying 6 of 6 entries

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Labeled View

NEW CABIN.

Type of Work: Visual Material
Registration Number / Date: VA0002330717 / 2022-08-24
Application Title: NEW CABIN.
Title: NEW CABIN.
Description: Electronic file (eService)
Copyright Claimant: Shen Engineers, Inc. Address: 2225 E. Murray-Holladay Road, #208, Salt Lake City, UT, 84117, United States.
Date of Creation: 2019
Date of Publication: 2019-10-07
Nation of First Publication: United States
Authorship on Application: Shen Engineers, Inc., employer for hire; Domicile: United States; Citizenship: United States. Authorship: 2-D artwork, technical drawing.
Pre-existing Material: technical drawings which have previously been published.
Basis of Claim: technical drawings and an arrangement of previously published technical drawings.
Rights and Permissions: HUA SHEN, Shen Engineers, Inc., 2225 E. Murray Holladay Road, #208, Salt Lake City, UT, 84117, United States, (801) 277-2625, sheneng@msn.com
Copyright Note: C.O. correspondence.
Names: Shen Engineers, Inc.

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Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

United States Register of Copyrights and Director

Registration Number
TX 9-169-886
Effective Date of Registration:
August 24, 2022
Registration Decision Date:
September 16, 2022

Title

Title of Work: HIGHSTAR CABIN 2500

Completion/Publication

Year of Completion: 2017
Date of 1st Publication: September 28, 2017
Nation of 1st Publication: United States

Author

- **Author:** Shen Engineers, Inc.

Author Created: new and revised text
Work made for hire: Yes
Citizen of: United States
Domiciled in: United States

Copyright Claimant

Copyright Claimant: Shen Engineers, Inc.
2225 E. Murray-Holladay Road, #208, Salt Lake City, UT, 84117, United States

Limitation of copyright claim

Material excluded from this claim: artwork and text from prior engineering plans created by Applicant dating back to 1999

New material included in claim: new and revised text

Rights and Permissions

Organization Name: Shen Engineers, Inc.
Name: HUA SHEN
Email: sheneng@msn.com
Telephone: (801)277-2625